

Transportation Control Measures-Review and Process

Background

TCMs have been extensively analyzed as part of past planning activities associated with state and federal plans. The federal ozone plan includes 26 TCMs for ozone, and five new TCMs would be added once EPA approves the 2001 Ozone Attainment Plan (see Attachment A). The need for additional TCMs will be determined when new estimates of tonnages needed to attain and maintain attainment are developed as part of the current ozone planning process, sometime in mid 2003. Recent work has included evaluation of five Further Study Measures (see Attachment B) and collaboration on future transportation control strategies in a stakeholder process sponsored by the California Air Resources Board.

TCM Definition: A working definition of transportation control measures can be found in state law, as “*any strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions.*”

Process:

Because there has been extensive discussion and analysis of TCMs, and a number of potential categories have been explored in one way or another, it will be essential to develop a process for screening new suggestions. This process would first identify new ideas and then determine if they are “reasonably available control measures” using the EPA guidance for this type of evaluation. As a starting point, the RACM analysis in the last federal ozone plan is included (Attachment C). General requirements for RACM are listed below:

- 1) Emissions reductions are not *de minimis*. This would screen out proposed TCMs that have little or no significant emission reductions. As the vehicle fleet gets cleaner over time, the impact of individual TCMs that reduce vehicle trips also becomes lower as each trip produces fewer pollutants.
- 2) TCMs would not expedite attainment. If a proposed TCM does not contribute to attainment of the standard by 2006 or shorten the attainment period, it would be eliminated. Since the region requires additional VOC reductions, TCMs that reduce VOC and NOx or those that reduce NOx more than VOC would be less effective in helping attain/maintain the federal air quality standards.
- 3) Economically and technologically infeasible. There may be no technological means to implement a TCM or there may be adverse economic impacts that outweigh the potential for emission benefits. In addition, the economic screen would consider the need to provide funding for the TCM over the life of its implementation.
- 4) Consistent with current law. A TCM would not be proposed that is inconsistent with current state or federal legislation or authority granted by that legislation. In part this screen relates back to the criteria for expeditious attainment, because a process to change current legislation could be lengthy and the resolution could extend well beyond the 2006 attainment date.

In addition to these general guidelines, regulatory agencies and the public have an interest in the cost effectiveness of proposed TCMs. While TCMs may have other benefits that would not be captured in a strict cost per ton reduced analysis, these would need to be discussed qualitatively. For transportation projects, TCM costs would include capital as well as operating costs.

State TCMs.

The State Clean Air Plan, includes TCMs that in some ways overlap, but also are more global in their reach than the federal TCMs (Attachment D). The state TCMs are intended to meet more stringent state air quality standards, but do not have the same legal requirements as the federal TCMs. MTC and the Air District annually report on the status and progress of the State TCMs, and a few new TCMs have been added to this list over time. This process will be used to identify new or modified TCMs, for inclusion in the state plan as well.

Carbon Monoxide

Original air quality plans in the early 80's and 90's included TCMs to reduce carbon monoxide. However, the Bay Area and all of California is in attainment for the federal carbon monoxide standard, so strategies to further reduce emissions are no longer required. These reductions have largely been achieved through the winter blend of fuels use in all motor vehicles.

Mobile Sources and Transport

Transport of pollutants, primarily NO_x, to the Central Valley has been a continuing issue in air quality planning, and led to recent legislative action to implement the Enhanced Smog Check program in the Bay Area. Although this program provides reductions in VOCs, its primary benefits are to better monitor NO_x coming out of the tailpipe under more realistic driving conditions. The need for TCMs that reduce NO_x will largely be driven by the state planning process which is where NO_x transport issues are being addressed.

Other Mobile Measures.

Mobile sources are a large and declining portion of the emission inventory. Reductions in mobile sources will contribute over 70% of the estimated VOC reductions and 80% of the NO_x reductions in the federal ozone plan between 2000 and 2006. These large reductions, due to a progressively cleaner vehicle fleet, will be even larger after the introduction of the Enhanced Smog Check Program in the Bay Area. This program was established by the State legislature to help downwind air districts in Sacramento and the San Joaquin Valley with their ozone problems. In addition to the new Enhanced Smog Check Program, other measures to improve the effectiveness of the existing smog check program will continue to be reviewed, including the possibility of remote sensing to identify cars that are gross emitters, and bringing more vehicles into the inspection program.

Attachments

Attachment A: Federal TCMs (Appendix D from 2001 Ozone Plan and Table 8)

Attachment B: Further Study Measures in federal ozone plan (Executive Summary)

Attachment C: RACM (RACM for TCMs in 2001 Ozone Plan)

Attachment D: State TCM (From Clean Air Plan)

APPENDIX D: STATUS OF TRANSPORTATION CONTROL MEASURES

Appendix D of the Bay Area 2001 Ozone Attainment Plan (Plan) provides an update on the status of federal transportation control measures (TCMs) for San Francisco Bay Area, as of April 2001. There have been 28 federal TCMs, 12 of which date from the 1982 Bay Area Air Quality Plan, and 16 of which were added by court order in 1991 pursuant to litigation over the 1982 Plan (*Sierra Club v. MTC*). A status report on TCMs is regularly provided in MTC's conformity determinations for both the Transportation Improvement Program and the Regional Transportation Plan.

The following tables summarize the status of all 28 TCMs. Table A summarizes the total emission reductions estimated to be generated by the original 12 TCMs from the 1982 Bay Area Air

Quality Plan, and compares these reductions to the original emission reduction target.

Table B shows emission reductions estimated to be generated from the 16 contingency TCMs adopted in 1991 to make up the shortfall, as calculated in 1987, in emission reductions from TCMs 1 through 12. As shown in Table B, many contingency TCMs are estimated to have "overachieved" their original emission reduction targets, since many programs have gone beyond what was envisioned in 1991.

Tables C and D give a status report on TCMs contained in the SIP, and demonstrate that many TCMs have been fully implemented.

Table A: Emission Reductions from TCMs in 1982 Bay Area Air Quality Plan

		<u>Tons/day</u>
Total estimated emissions reductions from 1982 Plan TCMs (see Table C)	VOC	2.69
	NOx	2.79
Estimated TCM emissions reductions actually achieved by 1987 ¹	VOC	1.80
	NOx	1.98
Shortfall in emission reductions to be made up by contingency TCMs	VOC	(.89)
	NOx	(.81)

Table B: Projected Emission Reductions from 1991 Contingency TCMs (MTC Resolution No. 2131)

		<u>Tons/Day</u>
Total projected emissions reductions from contingency TCMs available to make up shortfalls in TCMs 1-12	VOC	3.83
	NOx	3.08
Additional emission reductions due to overachievement of contingency TCMs ²	VOC	0.16
	NOx	0.34

¹ Per 1987 Bay Area Reasonable Further Progress Plan report.

² Emission calculations using EMFAC 7G emission factors.

	TCM 15: Additional emission credit is warranted for an additional increase in the Federal gasoline tax of 4.2 cents on 10/1/93.	VOC NOx	0.36 0.44
	TCM 16: Additional emission credit from the BART to Bay Point, BART to SFO, BART to Dublin, and Tasman LRT extension.	VOC NOx	0.16 0.36
	TCM 18: Additional emission credit due to increase to seven trains/day.	VOC NOx	0.03 0.02
	TCM 20: Additional emission credit based on an additional 151 HOV lane miles (current and programmed) beyond what was envisioned in TCM 20.	VOC NOx	0.11 <u>0.12</u>
	Total estimated emission reductions from overachieving contingency TCMs	VOC NOx	0.82 1.28

In addition to the above overachieving TCMs, MTC, Caltrans and the CHP have initiated and expanded the Freeway Service Patrol roving tow truck service to its current scope of 362 lane miles. The emission reductions calculated for this service are significant. VOC emission reductions are approximately 0.49 tons/day and for NOx 1.25 tons/day.³

Table C: TCMs from 1982 Bay Area Air Quality Plan⁴

TCMs from 1982 Bay Area Clean Air Plan	TCM Status	Estimated Emission Reductions (tons/day)⁵
TCM 1 Reaffirm commitment to 28% transit ridership increase between 1978 and 1983	Emission reductions in Baseline Annual transit boardings in 1978 were 333.6 million. In 2000, they were 495.6 million for a total increase of 48.6%.	Included in 1979 baseline. No additional credit taken

³ Analysis done by California PATH (California Partners for Advanced Transit and Highways Research Report UCB-ITS-PRR-95-5, February 1995) for Beat 3.

⁴ Shortfalls in emissions reductions projected for the original 12 TCMs were more than made up for by the 16 contingency TCMs adopted in 1990. These shortfalls and the contingency TCMs reductions that eliminated the shortfalls, are not reiterated in this table.

⁵ For TCMs 1 through 12, emission reductions shown are from published figures in the *1982 Bay Area Air Quality Plan* for 1987. These calculations were made using older EMFAC emission factors.

<p>TCM 2 Support post-1983 improvements identified in transit operator's five year plans and, after consultation with the operators, adopt ridership increase targets for the period 1983 through 1987</p>	<p>This TCM was implemented to the extent possible, but by its own terms, it is now out of date. Emission reductions in Baseline. (Note: Baseline also includes reductions from funded portions of operator Short Range Transit Plans.)</p>	<p>VOC: 0.72 NOx: 1.04</p>
<p>TCM 3 Seek to expand and improve public transit beyond committed levels</p>	<p>Emission reductions in Baseline Between FY 83/84 and FY 1998/99 fixed-route and paratransit fleets expanded from 3,751 vehicles to 4,725 or 26%.</p>	<p>VOC: 0.37 NOx: 0.54</p>
<p>TCM 4 Continue to support development of HOV lanes (see also TCM 20)</p>	<p>Emission reductions in Baseline: HOV lanes in operation by 1990--</p> <p>Alameda County</p> <ul style="list-style-type: none"> • I-80, westbound approach to Bay Bridge toll plaza and bypass of metering lights • Route 84, westbound approach to Dumbarton Bridge toll plaza (one HOV lane, two or more occupants) • Route 92, westbound approach to San Mateo Bridge toll plaza <p>Contra Costa County</p> <ul style="list-style-type: none"> • I-580/Knox Freeway, Bayview Avenue to Harbor Way <p>Marin County</p> <ul style="list-style-type: none"> • Route 101, from Richardson Bay Bridge to Tamalpais Drive (southbound morning, northbound afternoon) • Route 101, North San Pedro to Miller Creek <p>San Francisco</p> <ul style="list-style-type: none"> • I-80, Sterling Street eastbound on-ramp to Bay Bridge (afternoon operation only) • I-80, busway from Bay Bridge to Transbay Terminal (buses only) • I-280, Sixth Street to Army Street (southbound HOV lane, operates throughout the day, three or more occupants). <p>Santa Clara County</p> <ul style="list-style-type: none"> • Route 237, Route 880 to Lawrence Expressway (westbound morning, eastbound afternoon HOV lanes, two or more occupants) • Route 101, Guadalupe Expressway to San Mateo county line (HOV lanes, two or more occupants) <p><u>Santa Clara County Expressway System as of February 1990</u></p> <ul style="list-style-type: none"> • San Tomas Expressway, Route 17 to Route 101 (HOV lanes, two or more occupants); and • Montague Expressway, Route 101 to Route 680 (HOV lanes, two or more occupants) 	<p>No emission credit taken</p>
<p>TCM 5 Support RIDES' Efforts. (Emission reduction included in baseline.)</p>	<p>Emission reductions in Baseline RIDES for Bay Area Commuters continues to operate under contract to MTC</p>	<p>Included in 1979 baseline. No additional credit taken</p>

<p>TCM 6 Continue efforts to obtain funding to support long-range transit improvements (see TCM 16). (No emission reductions taken, implementation assumed beyond 1987.)</p>	<p>TCM deleted per August 28, 2001 EPA action on 1999 Ozone Attainment Plan.</p>	
<p>TCM 7 Preferential Parking. (Emission reductions assumed in baseline.)</p>	<p>Emission reductions in Baseline This TCM entails construction of preferential parking for carpools, transit users and vanpools. Currently over 100 park and ride lots operate in the region with approximately 6,300 spaces. Thus, the original goal of opening 17 new lots has been exceeded.</p> <p><u>Parking Facilities Provided by Transit Operators</u></p> <p>A large number of park-and-ride lots are provided at Caltrain commuter rail, BART and Guadalupe Corridor light rail stations.</p> <ul style="list-style-type: none"> Caltrain commuter rail service provides over 4,000 parking spaces. This figure does not include parking spaces in the five stations operated by SCVTA. BART provides 42,000+ parking spaces for its transit patrons at its stations. Due to parking deficiencies, BART has continued to expand its facilities. At certain stations, BART has established and actively enforces designated areas for carpools and vanpools. For its bus and light rail system, Santa Clara Valley Transportation Authority (SCVTA) operates 19 district-owned or leased park-and-ride lots (including lots at 10 of the 32 Santa Clara Valley Transportation Authority light rail stations) providing a total of 7,043 spaces. The lots also serve as staging areas for carpooling. 	<p>Included in 1979 baseline. No additional credit taken</p>
<p>TCM 8 Shared Use Park And Ride Lots</p>	<p>Emission reductions in Baseline TCM 8 is a program to use share park and ride lots for transit/carpooling.</p> <p>Approximately 18 shared used park and ride lots are operating with a combined total of approximately 1,100 parking spaces</p>	<p>VOC: 0.04 NOx: 0.05</p>
<p>TCM 9 Expand Commute Alternatives</p>	<p>Emission reductions in Baseline TCM 9 seeks to involve the private sector by encouraging employers to appoint Commute Coordinators who can disseminate information on commute alternatives.</p> <p>More than two employee transportation coordinator training classes per year were conducted between 1983 and 1987. MTC turned over this program to RIDES in FY 1987–88 and it continued until June 1994.</p>	<p>VOC: 0.87 NOx: 0.89</p>

TCM 10 Information Program For Local Government	Emission reduction assumptions in Baseline MTC published the following: <i>Traffic Mitigation Reference Guide</i> (1984). Discusses how local governments can incorporate traffic mitigation into their development review processes. <i>A New Game plan for Traffic Mitigation</i> . (1988). Presents a case study of the Bay Area's experience with the deployment of traffic mitigation efforts. <i>Key Considerations for Developing Local Government TSM Programs</i> . (1988). Detailed guidance for jurisdictions considering trip reduction ordinances. <i>What we Know and Don't Know About Traffic Mitigation Measures</i> . (1990). Updated information on traffic mitigation processes.	VOC: 0.69 NOx: 0.27
TCM 11 Gasoline Conservation Awareness Program (GasCAP).	TCM deleted per August 28, 2001 EPA action on 1999 Ozone Attainment Plan. Would continue as a CO strategy	
TCM 12 Santa Clara Commuter Transportation Program. (A downtown San Jose CO control strategy.)	TCM deleted per August 28, 2001 EPA action on 1999 Ozone Attainment Plan. Would continue as a CO strategy	

Table D: Contingency TCMs from 1991 MTC Resolution 2131		
TCM From Resolution No. 2131	TCM Status	Estimated Emission Reductions (tons/day) ⁶
TCM 13 Increase Bridge Tolls to \$1.00 on all Bridges	Emission reductions in Baseline Bay Area voters approved Regional Measure 1 in November 1988. Toll increase to \$1.00 on all seven state-owned bridges became effective on January 1, 1989.	VOC: 0.19 NOx: 0.24
TCM 14 Bay Bridge surcharge of \$1.00	Emission reductions in Baseline. Reductions exceed those anticipated in original TCM due to toll increases on all state owned bridges and Golden Gate Bridge. Effective January 1998, a \$1 bridge surcharge was approved by the Legislature and will be in effect for eight years.	VOC: 0.15 NOx: 0.28
TCM 15 Increase State Gas Tax by 9¢	Emission reductions in Baseline State voters approved the gas tax increase in June 1990.	VOC: 0.57 NOx: 0.84

⁶ For TCMs 1 through 12, emission reductions shown are from published figures in the *1982 Bay Area Air Quality Plan* for 1987. These calculations were made using older EMFAC emission factors.

<p>TCM 16 Implement MTC Resolution 1876, Revised New Rail Starts Agreement. (BART extension to Colma only)</p>	<p>TCM deleted per August 28, 2001 EPA action on 1999 Ozone Attainment Plan.</p>	
<p>TCM 17 Continue October 1989 Post-Earthquake Transit Services</p> <p>Ferry Service: preserve new ferry service initiated after the earthquake. This measure only takes emission credit for the Alameda/Oakland and expanded Vallejo ferry service initiated after the 1989 earthquake.</p> <p>BART: Continue expanded peak-period service, including extended hours of peak service on four lines and added trains to the peak period.</p>	<p>Emission reductions in Baseline. Emission reductions exceed those originally anticipated due to higher service levels currently provided.</p> <p>In May 1997, two new 300-passenger vessels were added to the Vallejo-San Francisco ferry service. This allowed three a.m. departure trips from Vallejo and three return trips from San Francisco. One new Alameda-San Francisco 400-passenger went into service in October 1997. In addition, the Harbor Bay Maritime Inc., a private company that initiated service between Bay Farm Island in Alameda and San Francisco in March 1992, is currently being funded by 3% bridge tolls and local funds from the city of Alameda. One new high-speed catamaran began service in September 1998 between Larkspur and San Francisco.</p> <p>The City of Alameda and the Ports of Oakland and San Francisco have all completed various ferry terminal improvements.</p> <p>Currently BART is operating:</p> <ul style="list-style-type: none"> • Extra hour of commute service during weekday on two lines (6 am to 7 p.m.). • Early system start-up on weekdays and Sunday. • Faster running speeds (no increase in capacity). <p>Additionally, BART increased peak period trains to 56 by mid 1997 and it is planning a further increase to 75 trains when the SFO/Millbrae station opens.</p>	<p>VOC: 0.27 NOx: 0.37</p>
<p>TCM 18 Sacramento-Bay Area Amtrak Service</p>	<p>Emission reductions in Baseline. Emission reductions exceed those originally anticipated due to higher service levels currently provided.</p> <p>TCM anticipated 3 round trips/day</p> <ul style="list-style-type: none"> • Service started December 1991 with three trains per day. In April 1996, service increased to 4 round trips per day between Sacramento and Oakland, three round trips between Oakland and San Jose, and one daily trip extending to Colfax. • Fifth and sixth trains between Sacramento and Oakland started in October 1998. • Seventh train was put into service in April 2000. 	<p>VOC: 0.07 NOx: 0.15</p>
<p>TCM 19 Upgrade Caltrain Peninsula Service (Assumes 66 trains/day and service extended to Gilroy)</p>	<p>Emission reductions in Baseline. Emission reductions exceed those originally anticipated due to higher service levels currently provided.</p> <p>Caltrain service was extended south to Gilroy on July 1992 with four daily round trips.</p> <p>In July 1997, Caltrain began operating 66 weekday trains.</p> <p>Currently, Caltrain operates 78 trains/day with plans for expansion to 120/day.</p>	<p>VOC: 0.11 NOx: 0.17</p>

<p>TCM 20</p> <p>Regional HOV System Plan</p> <p>Improve HOV lane system by developing and implementing MTC HOV Lane Master Plan. TCM assumed net increase of 221 HOV lane miles since 1990.</p>	<p>Emission reductions in Baseline</p> <p>In April 1990, MTC adopted the <i>2005 HOV Lane Master Plan</i>. At that time the HOV lane system was 64 miles. The HOV Lane Master Plan update identified implementation of 285 miles of HOV lanes since 1990, or a net addition of 221 miles. Currently 303 lane miles of HOV are operating with 133 more programmed.</p>	<p>VOC: 0.25</p> <p>NOx: 0.33</p>
<p>TCM 21</p> <p>Regional Transit Coordination</p> <p>Emission credits taken for multiple coordination initiatives including fare and service coordination, and reduced fare BART/bus transfers</p>	<p>Emission reductions in Baseline</p> <p>MTC supported a bridge toll bill (SB 2100), which provided funds for reduced bus/BART fares. The bill did not pass the legislature.</p> <p>The Commission's adopted Transportation and Coordination Implementation Plan incorporates a series of coordination projects including:</p> <ul style="list-style-type: none"> --TransLink®, when implemented in 2002, will enable transit patrons to use a contactless smart card to ride any of the 25 transit operators in the region. --Regional Transit Discount Card Program—changes to the program to save costs by eliminating fraudulent use of transit discounts by ineligible individuals. --BART express bus service program transfers operation of this service to local operators to eliminate duplication of service. • MTC has implemented SB 602 (Kopp) schedule and fare coordination mandates. Bill requires MTC to adopt rules and regulations for schedule and fare coordination and to have transit operators enter into joint fare revenue sharing agreements with connecting systems. • TravInfo®, the regional telephone number, provides a single telephone number (817–1717) for information related to traveling in the nine-county Bay Area. 	<p>VOC: 0.05</p> <p>NOx: 0.09</p>
<p>TCM 22</p> <p>Expand Regional Transit Connection (RTC) Services</p>	<p>Emission reductions in Baseline. Reductions exceed those anticipated in original program.</p> <p>Currently, RTC serves approximately 200 employers in the region and sells about \$10 million worth of transit tickets annually.</p> <p>Since January 1998, MUNI assumed responsibility for operating and managing this project.</p> <p>Commuter Check began in September 1991 and cumulative sales to date are nearly \$50 million.</p>	<p>VOC: 0.06</p> <p>NOx: 0.09</p>

<p>TCM 23</p> <p>Employer Audits</p> <p>TCM intended to identify high visibility companies who can act as “pacesetters” or models for effective employee Commute Alternatives Programs; build networks for employers/other institutions.</p> <p>Review and enhance programs; provide audit reports to document results</p>	<p>Emission reductions in Baseline</p> <p>The Employer Audits Program resulted in the formation of the Bay Area Corporate Employee Transportation Managers Group in 1991. This group is composed of corporate transportation managers from some of the largest companies in the Bay Area including Lockheed, Hewlett Packard, PG&E, and Chevron. RIDES acted as the coordinator of the group's activities and meetings, which ended in February 1998. Currently, RIDES continues to support voluntary employer-based trip reduction programs.</p> <ul style="list-style-type: none"> • The Employer Network CMAQ Project was completed in 1995. After the project was completed, the Corporate Group invited large employers from the hospital, colleges and universities and public employees networks to joins their group. The bicycle program was funded by AB 434 in FYs 1994-95 and 1995-96, but currently, it is no longer funded as a separate program and RIDES has incorporated it into its ongoing operations. In addition to helping with the annual “Bike to Work Day” promotion, RIDES assists individuals requesting bicycling information, referrals to advocacy groups, bike/transit options and/or bike buddy matchlists. <p>TDM managers for some Bay Area cities meet on a quarterly basis:</p> <ul style="list-style-type: none"> • To provide a forum for dissemination of information to public and private industry representatives (ETCs) involved in implementing TDM services. • To provide information and referral resource to assist public agencies and private organizations to implement local TDM activities. • To inform employers and public agencies that these assistance services are offered by the Regional Rideshare Program. 	<p>VOC: 0.16</p> <p>NOx: 0.22</p>
<p>TCM 24</p> <p>Expand Signal Timing Program to New Cities</p>	<p>Emission reductions in Baseline</p> <p>Emission assumptions for this TCM are based on a target of timing signals that affect 60% of the regional VMT. The Bay Area has approximately 5,500 traffic signals in the Bay Area. Based on funding to date, the target has been achieved.</p>	<p>VOC: 1.42</p> <p>NOx: (0.05)</p>

<p>TCM 25</p> <p>Maintain Existing Signal Timing Programs on Local Streets</p>	<p>Ongoing activities are intended to implement TCM 25 to maintain signals and include:</p> <ul style="list-style-type: none"> • The 2001 TIP programmed \$ 34.3 million for signal upgrade, coordination and timing projects. • Formed an Arterial Operations Improvement Advisory Committee (AOIAC) to advise MTC on how to better address the traffic signalization needs of local jurisdictions. • MTC established a Traffic Engineering Technical Assistance Program (TETAP) for cities to utilize. The 2001 TIP programmed \$750,000 in STP funds to continue TETAP requests. Future programming needs are estimated at \$1.2 million/year. 	
<p>TCM 26</p> <p>Incident Management on Bay Area Freeways</p> <p>TCM addresses the reduction delay through reduction of incidents and accidents on Bay Area freeways. Emission reductions are assumed from Caltrans' Traffic Operation System for 45-mile Cornerstone Project.</p>	<p>Emission reductions in Baseline Emission</p> <p>The Cornerstone project is funded, in place and operational as of December 1999.</p>	<p>VOC: 0.36</p> <p>NOx: 0.08</p>
<p>TCM 27</p> <p>Update MTC Guidance on Development of Local TSM Programs</p>	<p>Emission reductions in Baseline</p> <p>Fully implemented.</p> <p>MTC prepared report <i>Key Considerations for Developing Local Government TSM Programs</i> in December 1988. An update of this report was completed October 1990. Distributed report to cities, counties and Congestion Management Agencies in March 1991</p>	<p>VOC: 0.09</p> <p>NOX: 0.14</p>
<p>TCM 28</p> <p>Local Transportation Systems Management (TSM) Initiatives</p>	<p>Emission reductions in Baseline</p> <p>TCM 28 calls on MTC to support local TSM initiatives and to develop a Model Trip Reduction Ordinance for use by local jurisdictions. MTC prepared a model trip reduction ordinance in 1991. In 1995, the California legislature eliminated employee based trip reduction programs (SB 437). Some Bay Area jurisdictions have ordinances that encourage voluntary trip reduction efforts.</p> <p>The Air District's Trip Reduction Rule was adopted in December 1992. However, BAAQMD suspended implementation of Regulation 13, Rule 1 in October 1995.</p> <p>BAAQMD and some jurisdictions continue to encourage voluntary employer trip reduction efforts. In addition, a new group has been established called the Bay Area Clean Air Partnership, which plans to support and expand voluntary trip reduction efforts.</p>	

TABLE 8
PROPOSED TRANSPORTATION CONTROL MEASURES

2001 SIP #	Control Measure Description	Description & Implementation Steps	Schedule	Estimated VOC Reduction (tpd), 2000 to 2006	Estimated NOx Reduction (tpd), 2000 to 2006
TCM A	Regional Express Bus Program	Program includes purchase of approximately 90 low emission buses to operate new or enhanced express bus services. Buses will meet all applicable CARB standards, and will include particulate traps or filters. MTC will approve \$40 million in funding to various transit operators for bus acquisition. Program assumes transit operators can sustain service for a five year period. Actual emission reductions will be determined based on routes selected by MTC.	FY 2003. Complete once \$40 million in funding pursuant to Government Code Section 14556.40 is approved by the California Transportation Commission and obligated by bus operators	See below	See below
TCM B	Bicycle / Pedestrian Program	Fund high priority projects in countywide plans consistent with TDA funding availability. MTC would fund only projects that are exempt from CEQA, have no significant environmental impacts, or adequately mitigate any adverse environmental impacts. Actual emission reductions will be determined based on the projects funded.	FY 2004 – 2006. Complete once \$15 million in TDA Article 3 is allocated by MTC	See Below	See Below
TCM C	Transportation for Livable Communities (TLC)	Program provides planning grants, technical assistance, and capital grants to help cities and nonprofit agencies link transportation projects with community plans. MTC would fund only projects that are exempt from CEQA, have no significant environmental impacts, or adequately mitigate any adverse environmental impacts. Actual emission reductions will be based on the projects funded	FY 2004 – 2006. Complete once \$27 million in TLC grant funding is approved by MTC	See Below	See Below
TCM D	Additional Freeway Service Patrol	Operation of 55 lane miles of new roving tow truck patrols beyond routes which existed in 2000. TCM commitment would be satisfied by any combination for routes adding 55 miles. Tow trucks used in service are new vehicles meeting all applicable CARB standards.	FY 2001. Complete by maintaining increase in FSP mileage through December 2006	See Below	See Below
TCM E	Transit Access to Airports	Take credit for emission reductions from air passengers who use BART to SFO, as these reductions are not included in the Baseline	BART – SFO service to start in FY 2003. Complete by maintaining service through December 2006	See Below	See Below
TOTAL				0.5	0.7

DRAFT

**Further Study Measures
for Transportation**

in the

2001 Ozone Attainment Plan

FSM 1: Particulate Traps for Urban Buses

FSM 2: Update HOV Lane Master Plan

FSM 3: Study Effects of High Speed Freeway Travel

FSM 4: Parking Management Incentive Program

FSM 5: Enhanced Housing Incentive/Station Access Program

and

Potential Episodic Control Measures

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Prepared by the
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TABLE OF CONTENTS

	<u>Page #</u>
1. Executive Summary	1
2. FSM 1: Particulate Traps on Urban Buses	8
2. FSM 2: Update HOV Master Plan	12
3. FSM 3: Study Effects of High Speed Freeway Travel	16
4. FSM 4: Parking Management Incentive Program	23
5. FSM 5: Enhanced Housing Incentive/Stations Access Program	31
6. Possible Episodic Controls for Transportation	58

Executive Summary

The 2001 Ozone Attainment Plan identified 11 “Further Study Measures” (FSM) that could have emission benefits, subject to a more detailed evaluation and review process (see Attachment A for brief descriptions). Under California Air Resource Board’s (CARB’s) approval of the Ozone Attainment Plan, the schedule for completion of Further Study Measures in the Ozone Plan was accelerated to December 2002. MTC is the lead on the evaluation of five (5) Further Study Measures for transportation, and the Air District is developing recommendations for the other measures.

The purpose of the analysis of these measures is to determine their potential emission benefits, costs, obstacles to implementation, and overall feasibility. If the evaluation indicates that one or more measures shows promise, they could be included as a control measure in the Ozone Plan. In addition, there is growing interest in a set of “episodic” controls that could be employed on the 6 to 7 Spare the Air days to provide significant reductions in motor vehicle emissions on the days most conducive to ozone formation. These measures would be more visible in terms of their effect on the traveling public and employers, but may be acceptable given the short period during which the measures would be in effect.

This report is a draft of the results for the FSMs that MTC explored, which are listed below:

- FSM 1: Study Benefits of Particulate Trap Retrofit Program for Urban Buses
- FSM 2: Update High Occupancy Vehicle (HOV) Lane Master Plan
- FSM 3: Study Effects of High Speed Travel (also an episodic measure)
- FSM 4: Implement Parking Management Incentive Program
- FSM 5: Enhanced Housing Incentive /Station Access Program

Preliminary transportation related episodic measures under review for Spare the Air days include:

- Reduced High Speed Travel on Freeways
- Limiting Use of 1981 and Older Cars
- Employee Telecommuting
- Free Transit

The general approach for all these measures was to define them in a way that would be amenable to analysis using reasonable assumptions about the scope of the measures and associated emission benefits. With several measures, MTC has collaborated with outside agencies and interest groups (e.g., car sharing agencies, CARB, and agencies that could contribute funding for an expanded Housing Incentive Program). However, the possible episodic measures will need to be reviewed in further detail with the implementing agencies.

Overall some of the programs do offer promise, while others now appear to have marginal benefits. Each of the measures can be summarized in brief below:

Further Study Measures

FSM 1: Particulate Traps for Urban Buses

This measure was not an ozone measure, but responded to public concerns about the impact of urban buses on communities near bus routes. MTC calculates that its funding priorities, which provided some \$16+ million dollars to bus operators to repower buses with newer engines rather than replace existing buses, generated a net emission reduction of about 4 tons of particulate matter a year. There may be further opportunities to install state of the art particulate filters on a larger portion of the fleet as well.

FSM 2: Update HOV Lane Master Plan

This measure evaluates the emission benefits of HOV lanes and will produce a plan for expanding the current HOV lane network funded in the 2001 RTP as well as expanding the Regional Express bus network that could use these lanes. The air quality analysis has used two different tools to assess the impact of HOV lanes on emissions: the regional travel demand forecast model and a highway operational model for the I-680 corridor over the Sunol Grade (this corridor is particularly well suited to HOV analysis since there no parallel routes for traffic diversion). The initial work on the HOV emissions analysis has been completed. The updated HOV and Regional Express Bus plans will be released in draft form by the end of December, reviewed initially with POC in January and adopted in February 2003.

FSM 3: Study Effects of High Speed Freeway Travel

Some 34% of daily freeway vehicle miles of travel (VMT) occurs at speeds above 65 miles per hour, some as high as 85-90 miles per hour. MTC analyzed the effect of limiting travel speeds to the posted speed limit through expanded CHP enforcement. The analysis involved: 1) collecting the most recent Caltrans' freeway speed survey data, and 2) working with the CARB to develop vehicle emission factors for cars and trucks traveling over 65 mph. Emission reductions would be in the order of 1 to 3 tons per day regionwide, but would be lower if the measure concentrated enforcement on freeways in the central Bay Area and the morning time period. Given the low reductions projected and fact that the program would reduce Volatile Organic Compounds (VOC) and Nitrogen Oxides (NOx) by similar amounts (the Bay Area strategy focuses more on VOC control), the measure appears less promising than originally thought. Emission reductions from limiting big rigs trucks to 55 mph would have more significant results, but would primarily reduce NOx.

FSM 4: Parking Management Incentive Program

To conduct this analysis, MTC surveyed cities in the Bay Area to determine the amount of parking space that local governments provide that is free versus the amount that is charged. The thrust of the measure was to determine whether cities could be more of a factor in pricing transportation facilities by enlisting their support in charging for all parking. The analysis found, somewhat surprisingly, that about 81% of the city supplied parking in large lots and garages already requires payment of a fee. Because the impact

on travel behavior of nominal parking charges on the remaining 19% of the parking spaces would be modest, the measure does not appear to be significant for air quality unless existing and new parking charges were to be increased substantially. MTC also compiled information from various cities that have explored alternative approaches to setting parking requirements for new developments, particularly those near transit.

FSM 5: Enhanced Housing Incentive/Station Access Program

This measure consists of two parts: 1) a strategy for increasing the funding for MTC's Housing Incentive Program to attract more development near transit, and 2) an analysis of improved transit station access strategies, including station cars, bikes, and shuttles.

The funding strategy suggests pooling existing MTC, Air District, Congestion Management Agency and state funds, to arrive at an annual pool totaling \$15 million dollars. The measure also presents strategies to better leverage other funding sources for housing near transit.

The transit access analysis evaluated opportunities for expanding three different access modes: use of a pool of shared station cars (preferably low emission vehicles), developing more bike pavilions and bike stations around transit, and expanding shuttles to BART, Caltrain, and ACE. These improvements would provide new mobility options for shorter distance access trips around stations, but emission benefits on a regional scale would be fairly limited, in the order of tenths or hundredths of a ton per day. If implemented the measure would also include other technological elements, such as real time parking availability information, but does not attempt to attribute emission benefits to such elements.

Potential Episodic Measures

Reduced High Speed Travel. As discussed above, this measure would obtain emission reductions by limiting freeway travel speeds to the posted speed limit. With the episodic approach, extra CHP enforcement would be instituted only on the 6 to 7 Spare the Air days during the year. The same questions about the potential emission benefits apply as above.

Limiting Use of 1981 and Older Cars. The Bay Area has some 350,000 cars that are 1981 or older, and which contribute high levels of emissions due to their less stringent emission control systems. The proposed concept would be to have the owners of these cars not drive their cars when notified of Spare the Air days, either voluntarily or in response to certain incentives. Because of the large amount of emissions these cars produce--between 30 tons per day (NOx) and 57 tons per day (VOC)--even a partial participation of owners could yield significant emission benefits. The fact that the program would produce more VOC than NOx reductions would be a positive feature in terms of the Bay Area's ozone control strategy. This approach would also be much less costly than acquiring the vehicles under the Air District's existing older vehicle scrappage program. An essential first step would be to survey vehicle owners to determine whether a voluntary program would be successful, or whether monetary or

other types of incentives would be required for an effective program. The survey would also be designed to determine the extent to which low income owners of these vehicles might be adversely affected and to design possible remedies.

Employee Telecommuting. Employers can make a contribution to emission reductions on Spare the Air days by enabling some of their employees to work from home. Currently, employers in the Spare the Air network simply agree to notify their employees of an upcoming Spare the Air day. There are probably a number of employees who could work at home on Spare the Air days, if allowed to do so by their employers. This episodic measure would require a change in state law, which prevents local agencies from imposing trip reduction requirements on employers, by requiring businesses to make this option available to employees whose work could be performed at home. The legislation could be controversial, but the impact on business would be mitigated by the few Spare the Air days on which this option would be invoked. Emission benefits are difficult to calculate, until there is a better estimate of the potential number of employees who could participate. In 2002, 2000 employers with one million employees participated in the voluntary Spare the Air program.

Free Transit. A number of areas (e.g. Vancouver, Kansas City, St Louis, New Jersey, Portland, Dallas) have experimented with free transit on Spare the Air Days, some for lengthy periods and some for very short periods. Some programs have attracted ridership increases, but it is often difficult to show that these are people who switched from driving as opposed to frequent transit users who decided to ride the bus or train that day because of the free fare. Given the extensive Bay Area transit network, such a program is worth exploring, and if implemented regionwide should be evaluated both from a ridership perspective and an emissions perspective. The funding needed would be approximately equivalent to the \$1.5 million in passenger fares collected on a daily basis. Raising bridge tolls on Spare the Air days has been suggested as one source, which itself would function as an episodic control measure to discourage auto use.

Table 1 shows some of the key parameters for the measures that have been evaluated to date.

Recommendations/Next Steps

Given the analysis to date, we recommend that the following approach should be pursued.

FSM 1-Particulate Traps. New particulate traps currently undergoing certification tests with CARB could lower particulates and NOx from diesel buses. MTC will evaluate funding opportunities for these devices in future programming cycles.

FSM 2 Update HOV Master Plan. While the emissions analysis shows HOV lanes do have some benefits, the effect of HOV lane expansion on regional emissions is best analyzed in the “baseline” emissions inventory, and not as a separate TCM. The draft HOV Plan will be completed by the end of December and adopted by the Committee in February, 2003.

FSM 3-Freeway High Speed Travel. The results of the initial analysis are inconclusive, but further investigation into emission factors of vehicles traveling at speeds above the posted speed limit should continue. If the results of this work warrant, an initial step could be to advise motorists to adhere to the posted speed limits on Spare the Air public messages.

FSM 5-Housing Incentive Program. A \$15 million dollar annual target (up from the current \$9 million) could be achieved by combining funding from MTC, the Air District, CMAs and state funds, such as the new Affordable Housing Bonds (Proposition 46 which passed in November) and other state funding programs. Additionally, MTC will explore legislation to encourage Tax Increment Financing around transit stations as an additional source of incentive funds.

FSM 5-Transit Station Access. Car sharing agencies and transit operators are most directly involved in further expansion of this concept, and MTC would facilitate further work by those agencies. Bike access station improvements do not involve large amounts of funding and would be eligible for TDA Article 3 and CMA funding. MTC, the Air District, and transit operators should assess more stable funding sources as a way to expand successful transit shuttle services.

Episodic-Avoid driving older vehicles on Spare the Air days. Because of the large potential tonnages involved, further development of this measure is warranted. MTC will work with the Air District to conduct a survey of owners of older vehicles and assess the feasibility of voluntary versus incentive type programs. The survey will also address the impacts on low income vehicle owners. If the survey results are promising, an initial voluntary phase of the program would be developed for the 2003 ozone season.

Episodic Telecommuting Option. MTC and the Air District would work with Bay Area employers during the 2003 legislative session to develop modifications to existing state law, which would require employers to identify and extend to certain employees the opportunity to work from home on Spare the Air days.

Episodic-Free Transit. The follow up for this measure would be to develop a demonstration program for one or more transit operators and identify funding. The results of the demonstration would be closely monitored to determine the potential for broader application. The Air District is currently considering funding a program for the Livermore Amador Valley Transit system (LAVTA).

TABLE 1
Transportation Strategy Summary Table

	Description	Emission Benefits	Cost	Notes
FSM 1	Particulate Traps for new Urban Buses	.01 tons per day of particulate matter	\$16.8 million	Accomplished through replacement/repower bus program
FSM 3	Lower freeway speeds for cars to posted limits; lower for trucks to 55 mph	Cars: VOC = 1-2.8 tpd NOx = 0.9-1.9 tpd	\$90 - \$100K per year for 6-7 days of added CHP enforcement	Costs are for an episodic program, which would be most cost-effective version of this FSM
FSM 4	Parking Management Incentive Program for cities	Unknown, but probably limited at modest parking rates	Assume \$500 per converted space to paid parking = \$9.5 million	
FSM 5	Transit Station Access Improvements -Station cars -Bikes -Shuttles	0.2 tpd of VOC or NOx	Stations Cars: - \$15m to \$48m capital, depending on technology - \$5m per year operations Bikes: - \$3.9m capital - \$80k to \$100k per year operations Shuttles: - \$2.5m - \$4.0 million per year on a contract basis	Cost based on: - Station Cars: 1,000 car program - Bikes: 1,800 new bike access trips to transit - Shuttles: 6 new routes to BART and Caltrain

TABLE 1 (Cont'd)

Episodic	Emission Benefits	Cost	Notes
Limit use of 1981 and older cars	VOC: Some portion of 56 tpd NOx: Some portion of 30 tpd	- Assume 10% participation x 7 days x 2 trips x \$3 per trip avoided = \$1.5 million per year - Assume administrative cost of \$125K per year	Costs based on incentive program which provides free transit pass to owner of older vehicle to make trip on transit
Employee Telecommuting	Potentially significant – up to 3 tpd VOC and NOx with 5% participation	Some productivity costs to employers	Emission benefits would depend on number of Bay Area employees who would be identified as eligible telecommuters
Free Transit	Assume 10% increase in daily transit riders VOC: 0.5 tpd NOx: 0.7 tpd	\$9 - \$10.5m per year	Evaluation of program would be essential to identify actual number of new riders/emission reductions.

Transportation Control Measures

TCMs considered for RACM analysis in Section I of this RACM analysis focus on Section 108(f) of the Clean Air Act, but are augmented as necessary to reflect comments from::

April 27th MTC sponsored workshop on TCMs for the updated *Ozone Attainment Plan* at workshop,

- TCMs in the 1997 Bay Area Clean Air Plan, comments made at an May 30th workshop on the Draft Ozone Attainment Plan,
- Comments from EPA staff,
- Review of potential TCMs in EPA's TCM database (on EPA's website)

TCMs contained in the South Coast Air Quality Plan

Attendees at the April 27th TCM Workshop and/or commenter on 1999 Draft/Final Ozone Attainment Plan:

Name	Affiliation
	League of Woman Voters
Mark Brucker	US EPA
Dave Cosey	Caltrans District 4
Nancy Jewell Cross	AC Transit
Michael Cunningham	Bay Area Council
F. Gallo	NAACS2
Jim Gleican	AC Transit
John Holtzclaw	Sierra Club
Sherman Lewis	Sierra Club
Jonathan Marsh	
Roy Nakadegawa	BART
Martha Olson	Urban Habitat
Sara Procacci	SF Muni
Larry N. Rennacker	
Hank Resnik	Sierra Club
David Schonbrunn	TRANSDEF
Catherine Showalter	RIDES for Bay Area Commuter
Gail Staba	Port of Oakland
Ed Stewart	San Francisco County Transportation Authority
Thanh Tu	Caltrans District 4
Stanley Yung	Earthjustice Legal Defense Fund

Section I: Review of Section 108(f) Measures from the Clean Air Act¹⁴

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
<p>1 Programs for improved public transit: (General)</p>	<p>In SIP as TCMs 1, 2, 3, 7, 17, 18, 19, 21 and 22. (Also in Baseline).</p> <p>New measure proposed as TCM A (Regional Express Bus Program). The level of transit funding is set by the Regional Transportation Planning process and, when considered by mode, receives the largest share of public transportation funding. (See discussion in updated Ozone Attainment Plan on transit funding amounts.)</p> <p>Transit ridership in region continues to increase. Funding alone also does not increase transit ridership. Ridership is affected by a large range of factors, such as location and amount of job and population growth, the costs and travel times of other travel options, and transit service reliability, etc. Any ridership growth will require that existing transit vehicles and facilities continue to be maintained, which is a key policy and funding priority within MTC's Regional Transportation Plan. Some areas where transit needs are most evident, such as increasing late night service and weekend service, would not have significant air quality benefits. Individual transit concepts are discussed below</p>	<p>Varies. Depends on service levels, ridership and the magnitude of any shift to transit from prior auto users. New diesel bus service that is not well utilized could increase NOx</p>	<p>MTC (partial). Through planning and selected funding decisions. Transit boards have authority to establish fares and implement service improvement programs. Funding for significant service expansion or reduced fares would require new operating funds from: a) legislative or voter approval of new operating revenues, b) transit productivity improvements, c) deferring equipment and facility maintenance, or d) raising fares</p>	<p>Yes</p>	<p>Many transit measures currently included in SIP. Recommend new TCM A for updated Ozone Attainment Plan</p>

¹⁴ While the measures shown in this section are from Section 108(f) of the Clean Air Act, they have been expanded upon based on proposals made for 1999 draft and final *Ozone Attainment Plan*, and proposals made at an MTC sponsored workshop on TCMs for the updated *Ozone Attainment Plan* at workshop, held April 27, 2001, and a review of TCMs in the 1997 Bay Area Clean Air Plan, comments made at an May 30th workshop on the Draft Ozone Attainment Plan, comments from EPA staff, review of potential TCMs in EPA's TCM database (on EPA's website, and TCMs contained in the South Coast Air Quality Plan.

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
<p>1a Programs for improved public transit</p> <ul style="list-style-type: none"> Transit service increases (new routes/frequency) 	<p>In SIP Baseline as:</p> <ul style="list-style-type: none"> TCM 1 (Reaffirm commitment to 28% transit ridership increase between 1978 and 1983), TCM 2 (Support post-1983 improvements in operator's five year plans). TCM 3 (Seek to expand and improve public transit beyond committed levels) TCM 17 (Continue October 1989 Post Earthquake Transit Service TCM 19 (Upgrade Caltrain service to 66 trains/day, expand to Gilroy) <p>Other Baseline or committed transit service increases:</p> <p>Local Bus Expansion:</p> <ul style="list-style-type: none"> AC Transit enhanced bus service funded by new sales tax Santa Clara VTA bus fleet expansion funded by new sales tax <p>Rail Expansion</p> <ul style="list-style-type: none"> BART extension to SFO Increase in daily commute period BART trains from 56 to 60 SF MUNI Third Street LRT extension in Bayshore Corridor Santa Clara LRT extensions: Tasman East LRT, Capitol LRT Extension, Vasona LRT extension Additional expansion of Caltrain service beyond TCM 19 assumption of 66 trains/day to 80 trains/day. 	<p>Transit ridership and emission reductions associated with transit service improvements are estimated using MTC's travel demand forecasting model and are included in the Baseline.</p> <p>Transit service that attracts significant numbers of auto users can reduce emissions.</p>	<p>Authority to increase services lies with transit operators, not the three co-lead agencies.</p> <p>Most of major transit service increases due to voter-approved sales tax measures(e.g., \$2.0 billion for transit improvements between Fremont BART and San Jose)</p>	<p>Yes</p>	<p>Baseline includes numerous programs and projects to increase transit service.</p> <p>Conversion of Baseline projects into TCMs will not advance attainment, since these projects are funded and being implemented.</p>

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
1b Programs for improved public transit <ul style="list-style-type: none"> More express/rapid bus service 	As part of Governor's Transportation Congestion Relief Program (AB2928) MTC received \$40 million to be spent in this effort.	(See comments for measure 1a above)	(See comments for measure 1a above)	Yes	Included as new TCM A (Regional Express Bus service)for updated Ozone Attainment Plan
1c Programs for improved public transit <ul style="list-style-type: none"> Intercity rail service improvements 	In SIP Baseline as: <ul style="list-style-type: none"> TCM 18 (Sacramento-Bay Area Amtrak Service assumes 3 roundtrips/day). Actual service is now up to 7 roundtrips/day. In addition, the Baseline incorporates the new Stockton to San Jose intercity rail service, which began 10/98. Currently three roundtrip trains/day operate. 	(See comments above)	Co-lead agencies don't have legal authority to increase transit services. Authority lies with transit operators. Operating funds come from agencies other than MTC (State and counties through sales tax measures) State has proposed increasing Capitol Corridor service in the future.	Yes	Intercity rail service improvements are part of the Baseline. Conversion of Baseline projects into TCMs will not advance attainment, since these projects are already operated or funded and will be implemented.

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
1d Programs for improved public transit: <ul style="list-style-type: none"> Increase ferry services 	In SIP Baseline as: <ul style="list-style-type: none"> TCM 17 (Continue October 1989 Post-Earthquake Transit Services including the Alameda/Oakland and expanded Vallejo ferry service). These services are operating today and incorporated into the Baseline. Vallejo operates three round trips/day. Additional ferry service being studied by new SF Bay Area Water Transit Authority but no funding has been identified 	No. Current ferry technology relies on diesel fueled engines, with minimal emission control methodologies, and potential NOx issues. Therefore, not a significant source of emission reductions (See also comments for measure 1a above)	Transit operators and cities. MTC provides limited funding through bridge tolls.	Yes	Ferry services operating in Baseline. Further increases would depend on new operating funds. Conversion to TCM will not advance attainment, since no new operating funds available.
1e Transit access to airports	Ongoing programs in Baseline to maintain and increase transit access to airport. Major project coming online with the BART extension to the San Francisco Airport. Propose new TCM E: accounts for future air passenger trips to the San Francisco Airport on BART.	Air passenger emission reductions for passengers taking BART to SFO not accounted for in Baseline. Therefore, this measure takes credit for reductions starting in 2002 or the actual time BART begins service.	BART project currently under construction.	Yes	Recommend as new TCM E- Transit Access to Airports

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
1f Programs for improved public transit: <ul style="list-style-type: none"> Shuttles to transit 	<p>Currently there are over 50 publicly funded shuttle routes serving various Caltrain stations and linking Caltrain with employment and shopping sites. Several employer financed shuttles link BART with employment sites. Also a significant component of many public bus systems is feeder service to fixed rail systems (AC Transit, SamTrans, CCCTA, LAVTA , etc.) These are all operating today and in the Baseline</p>	<p>(See comments for measure 1a above)</p>	<p>(See comments for measure 1a above)</p> <p>Shuttles are joint public/private efforts, generally operated by transit operators using existing transit funds from local, regional (MTC, BAAQMD) and/or private services. Co-lead agencies don't have authority to operate transit.</p>	<p>Yes</p>	<p>Activity ongoing in Baseline. Conversion of Baseline projects into TCMs will not advance attainment, since no new operating funds have been identified to increase service.</p>
1g Productivity Improvements	<p>In Baseline as TCM 2. There are many different forms of productivity improvements:</p> <ul style="list-style-type: none"> Reliability /on time performance Operating efficiencies to save costs Marketing Information Management decision making tools Labor agreements/privatization of some service <p>Route restructuring, etc</p>	<p>Difficult to predict and depends on measure or combination of measures since in most cases ridership effects are indirect.</p>	<p>Yes. MTC annually adopts a Productivity Improvement Program which defines what steps transit operators will take. Implementation is responsibility of operator. This effort has been ongoing since late 70's.</p>	<p>Yes</p>	<p>Activities ongoing in Baseline. Inclusion of additional measures as TCM would not advance attainment.</p>

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
1h Programs for improved public transit: <ul style="list-style-type: none"> Transit information and service coordination improvements Fare Incentives Youth Transportation 	<ul style="list-style-type: none"> In Baseline as TCM 21 (Regional Transit Coordination) TCM 21 and TCM 22 (Expand Regional Transit Connection Service) . Ongoing activities include: TransLink®, when implemented in 2002, will enable transit patrons to use a contactless smart card to ride any of the 25 transit operators in the region. RTC Clearinghouse a program that distributes tickets to 200 employers and sells \$10 million worth of tickets annually Commuter Check program for employers has sold over \$50 million in tickets since inception Implementation of MTC schedule and fare coordination mandates, which includes adopting rules and regulations for schedule and fare coordination and requires transit operators enter into joint fare revenue sharing agreements with connecting systems. All agreements are in place. TravInfo®, the regional telephone number, provides a single telephone number (817–1717) for information related to traveling in the nine-county Bay Area. All transit operators have fare discounts of various types. 	(See comments for measure 1a above)	Yes. MTC requires coordination improvements Also, all transit operators currently offer discounts for youth and school children. Fare incentives can only be authorized by transit operators.	Yes	<p>Extensive program of reduced fare transfer arrangements and coordination activities already in place.</p> <p>There are no additional activities that would significantly advance attainment.</p>

	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
2	<p>Restriction of certain roads or lanes to, or construction of such roads or lanes for use by passenger buses or high-occupancy vehicles (HOV)</p> <ul style="list-style-type: none"> • Construction of new HOV lanes ▪ Increase enforcement ▪ Increase occupancy requirements of some lanes to 3+ ▪ Conversion of existing HOV lanes to bus-only lanes ▪ Utilization of freeway shoulders for peak-period express bus use ▪ Commercial vehicle buy-in to underutilized HOV lanes ▪ Congestion pricing or value pricing of HOV lanes 	<p>New HOV lanes In Baseline as TCMs 4 & 20</p> <p>Baseline also includes 151 lane miles of new carpool lanes programmed in the TIP (18 miles in operation, 133 more programmed in TIP) beyond the 285 lane miles included in TCMs 4 and 20 (See Appendix D).</p>	<p>Yes. Depends on specific HOV lane effectiveness in terms of improving travel time and increasing vehicle occupancy.</p> <p>Limiting HOV lane to buses or raising occupancy requirements to 3+ people in a vehicle could increase congestion on mixed-flow lanes and adversely affect air quality. Increased enforcement would have an indirect effect on carpool formation by increasing travel times for legitimate HOV lane users.</p>	<p>Yes. MTC can recommend HOV designation and approve projects that are consistent with the RTP..</p>	<p>Yes</p>	<p>Currently included in the SIP Baseline. Conversion of projects currently in the Baseline into TCMs will not advance attainment, since these projects are already funded and will be implemented</p> <p>Other items not reasonably available without additional information. Therefore, propose review of HOV policies as a Further Study Measure.</p>

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
<p>3 Employer-based transportation management plans, including incentives</p> <ul style="list-style-type: none"> • Commute alternatives (and requirements for employers to implement) • Guaranteed ride home programs • Telecommuting • Flexible work hours • RTC/Commuter check • Participation in Spare the Air efforts • Proximate commuting education programs 	<p>In SIP as TCMs 5, 9, 22 and 23.</p> <p>MTC funds the regional ridesharing program (RIDES for Bay Area Commuters), which supports employer-based transportation programs. Employers may include incentives and opportunities for employees to work closer to their home, when employers offer multiple worksites (proximate commuting education programs).</p> <p>MTC contributes funding to the Air District's Spare the Air campaign that notifies employers who in turn notify their employees of the need to use commute alternatives when high ozone levels are predicted.</p> <p>Employer receptivity to telecommuting and flexible work hours varies among employers and even among job classifications within a single employer depending upon job requirements.</p>	<p>Varies. A strong regulatory program (i.e., employer trip reduction regulations) can be a significant source of emission reductions. Voluntary programs much less so.</p> <p>Flexible work hours may have only limited impact on an employee's ability to rideshare or take transit.</p> <p>May not be an option for many employees</p>	<p>No regulatory authority. MTC works with employers indirectly through dissemination of information and assistance with ridesharing RIDES for Bay Area Commuters works directly with employers and their representatives.</p> <p>State law eliminates BAAQMD ability to require employer based trip reduction programs. State law already allows parking cash-out under certain conditions.</p> <p>Telecommuting policies are determined by employers.</p>	<p>Regulations that employers fund commute alternatives may be economically infeasible for certain businesses. However, no regulatory authority to require.</p> <p>If agreed to by employer, such programs are feasible. Often such programs as telecommute; flexible work hours and shifting of work sites are included in employer/employee employment and/or labor contracts.</p>	<p>A number of employer assistance programs are currently included in the SIP and Baseline. These include TCM 5 (support ridesharing efforts), TCM 10 (information program for Local Governments) TCM 22 (expand Regional Transit Connection Services), TCM 23 (Employer Audits), which resulted in the formation of Bay Area Corporate Employee Managers Group.</p> <p>Voluntary employer efforts are not enforceable. Mandatory, enforceable programs are not permissible under State law.</p>

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
4 Trip-reduction ordinances	Not feasible or reasonably available because California State Law prohibits employer based trip reduction ordinance programs (SB 437). A number of employers continue to provide exemplary trip reduction programs on a voluntary basis.	Yes	None. California State Law prohibits employer based trip reduction ordinance programs (SB 437)	No. State law prevents implementation	Measure not legally available.

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
<p>5 Traffic flow improvement programs that achieve emissions reductions.</p> <ul style="list-style-type: none"> ▪ Signal timing ▪ Freeway Traffic Management ▪ Freeway Incident Management ▪ Freeway Service Patrol 	<p>In SIP and Baseline as TCMs 24, 25, 26. Also propose to add new TCM D (Expansion of Freeway Service Patrol)</p> <p>Traffic flow improvements are an ongoing program. Many improvements funded directly by cities/counties. MTC has achieved the level of upgrading and coordination of signals anticipated in TCM 24. MTC continues to implement TCM 25 by providing technical assistance to local cities through the Traffic Engineering Technical Assistance Program and through an ongoing arterial operations committee. Since 1999, MTC has programmed \$34.3 million in Federal and State funds for signal timing and coordination projects.</p> <p>Also:</p> <ul style="list-style-type: none"> ▪ MTC, Caltrans, and CHP currently maintain a 362 lane-mile system of roving tow trucks on freeways during the commuter period to assist motorists and reduce congestion from incident delays, which also decrease emissions. ▪ Caltrans and MTC are working to implement a regionwide Traffic Management Center to better detect and manage incident delays. 	<p>Yes, although some of reductions may be slightly offset by increased travel.</p>	<p>Yes through MTC allocation of funds.</p> <p>However, authority for specific traffic improvements and signal programs are with local municipalities.</p>	<p>Yes. Arterial signal improvements and freeway incident management program are feasible.</p>	<p>Efforts ongoing and in Baseline.</p> <p>Recommend new TCM that expands existing Freeway Service Patrol (TCM D—Expansion of Freeway Service Patrol)</p>

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
<p>6 Fringe and transportation corridor parking facilities serving multiple-occupancy vehicle programs or transit service.</p>	<p>In SIP and Baseline as TCM 7 and 8. Extensive program in place and operating:</p> <p>Currently over 100 park and ride lots operate in the region with approximately 6,300 spaces.</p> <p>Over 50,000 park and ride spaces are provided at Caltrain commuter rail, BART and Guadalupe Corridor light rail stations.</p> <p>In addition, the TIP includes funding for 14 park and ride lots.</p>	<p>De minimis—likely less than .01 tons/day. Park and ride lots are not a strong inducement to ridesharing, except at rail stations. Emission reductions for rail transit are tempered by auto engine starts to drive to transit.</p>	<p>Yes. MTC through funding actions. Caltrans, transit operators or local agencies implement.</p>	<p>Yes</p>	<p>Currently included in the SIP and in Baseline.</p> <p>Lots not currently in TIP would take a number of years to plan and implement and would not advance attainment date.</p>

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
<p>7 Programs to limit or restrict vehicle use in downtown areas or other areas of emissions concentration particularly during periods of peak use.</p>	<p>Reference to emission concentrations, suggests this is a CO control strategy, which is not relevant to the Ozone Attainment Plan. However, some cities impose restrictions on commercial vehicles during peak periods in congested Central Business Districts.</p>	<p>De minimis—likely less than .01 tons/day. Impact on reducing ozone precursor emissions is de minimis since restrictions may increase emissions due to circuitous driving at congested speeds. Such measures have not demonstrated ability to reduce overall regional VMT or auto starts.</p>	<p>Authority for such action rests with local municipalities and cannot be imposed by MTC.</p>	<p>Yes</p>	<p>Not proposing inclusion in the updated Ozone Attainment Plan since these programs would have <i>de minimis</i> impact on reducing air quality emissions due to their impact of redirecting rather than reducing VMT.</p>
<p>8 Programs for the provision of all forms of high-occupancy, shared-ride services</p>	<p>Measure in SIP and Baseline as TCM 5. MTC's continues to fund ride-sharing services by contracting with RIDES for Bay Area Commuters. The Regional Rideshare Program helps the public and employers develop and implement viable carpool and vanpool programs, and encourage use of public transportation. MTC monitors and evaluates the program and its services to make sure that effective and efficient services are being implemented. MTC also encourages the regional program to coordinate with local TDM programs to maximize return on investment.</p>	<p>De minimis—likely less than .01 tons/day. Given that availability of ridematching services and vanpool formation assistance are a convenience but not the main inducements to ridesharing.</p>	<p>MTC funds regional rideshare support activities</p>	<p>Yes</p>	<p>Currently included in the SIP and Baseline through TCM 5 and ongoing rideshare activities.</p>

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
<p>9 Programs to limit portions of road surfaces or certain sections of the metropolitan area to the use of non-motorized vehicles or pedestrian use, both as to time and place:</p> <ul style="list-style-type: none"> Traffic Calming 	<p>This appears to be more applicable as a CO control strategy, which is not relevant to the Ozone Attainment Plan.</p> <p>Currently, many arterials throughout the Bay Area include striping for bike lanes. Also many jurisdictions have local bike plans and have developed a system of bike lanes.</p> <p>A number of local jurisdictions have implemented traffic calming.</p>	<p>De minimis—less than .01 tons/day. Mode shift impacts of such restrictions or facilities insignificant for ozone.</p> <p>Traffic calming is a useful strategy for neighborhood livability, but might result in diverting traffic from one neighborhood to another without an overall reduction in travel; thus regional emissions are not reduced.</p>	<p>Authority to limit use rests with local municipalities or park districts and cannot be imposed by MTC.</p>	<p>Yes</p>	<p>Not proposing inclusion in the updated Ozone Attainment Plan since these programs would have <i>de minimis</i> impact on reducing air quality emissions since overall VMT not reduced. Bicycle related activities are proposed as new TCM B. (See discussion for Measure 10).</p>

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
<p>10 Programs for secure bicycle storage facilities and other facilities, including bicycle lanes, for the convenience and protection of bicyclists, in both public and private areas</p>	<p>Ongoing bicycle programs are included in Baseline and funded by both MTC (TDA Article 3 and STP/CMAQ) and Air District (TFCA). MTC requires bicycle committees and plans as condition for counties to receive TDA bicycle funds. All Bay Area counties have established bicycle committees.</p> <p>All counties and major cities have designated staff to oversee bicycle programs.</p> <p>All Bay Area counties and many cities have adopted comprehensive bicycle plans. Air District funded citywide bicycle parking plan in San Jose.</p> <p>Bay Area transit operators have installed bus bike racks and/or allow bikes in buses/vessels with low passenger loads.</p> <p>New Benicia and Carquinez bridges will have bike lanes. Dumbarton Bridge allows bicycle access. The Bay Bridge Task Force recommended that the new eastern span of the Bay Bridge should include a two-way bike/ped path, and recent legislation requires evaluation of bike access on the western span. The BCDC permit for the Hayward/San Mateo bridge requires a bike shuttle once the bridge is widened. Golden Gate Transit buses provide some bike access on Richmond/San Rafael bridge. MTC is evaluating other bike access options for this bridge. Also proposed for inclusion in the updated Ozone Attainment Plan as new TCM B (Bicycle/Pedestrian program).</p>	<p>Minor—in the range of up to .03 to .05 tons/day.</p> <p>Bicycle trips account for approximately 1.2% of total weekday trips. Thus, policies focused on bicycle trips affect a small proportion of the daily regional travel.</p>	<p>MTC and Air District (partial) through funding allocations.</p> <p>Local jurisdictions can require such facilities as part of development review process.</p>	<p>Yes</p>	<p>Extensive program in Baseline.</p> <p>Updated Ozone Plan would add new TCM (TCM B) that recognizes ongoing efforts toward improving bicycle program</p>

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
11 Programs to control extended idling of vehicles.	<p>Measure in SIP as TCMs 24 and 25 (see discussion under "5" above related to signal timing and emission reductions from reduced idling)</p> <p>Caltrans FastTrak automated toll collection on Bay Bridges will also reduce idling at these facilities. Program is operational on Bay Bridge and is being expanded.</p>	<p>Yes, in relation to arterials and automated toll collection.</p>	<p>MTC (partial). Through funding of arterial improvements. MTC does not have authority to regulate vehicle idling at private businesses such as drive-through facilities</p>	<p>Yes</p>	<p>In Baseline. No activities available, which would advance attainment.</p>
12 Reducing emissions from extreme cold-start conditions; <ul style="list-style-type: none"> ▪ Preferential parking at rail stations for electric vehicles. 	<p>Cold start emission reductions primarily achieved through continuing advances in engine technology. Also, strategy more appropriate for control of CO emissions during cold weather, which is not relevant to Ozone Attainment Plan. Pre-heating of catalytic converters for ozone reduction may be a future technological advance.</p> <p>Preferential parking for electric cars provided at some BART stations. Caltrain is currently evaluating proposals from Stanford University and Toyota for programs to encourage electric vehicles.</p>	<p>Unknown. Preferential parking for electric vehicles would not stimulate use of hybrid vehicles, which may be the more popular low emission vehicle in the near term.</p>	<p>California Air Resources Board through regulations for engine manufacturers.</p> <p>Preferential parking decisions reside with the owner/ operator of public and private lots.</p>	<p>Yes</p>	<p>Not significant ozone strategy, thus not included in SIP</p>

	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
13	<p>Programs and ordinances to facilitate non-automobile travel, provision and utilization of mass transit, and to generally reduce the need for single-occupant vehicle travel, as part of transportation planning and development efforts of a locality, including programs and ordinances applicable to new shopping centers, special events, and other centers of vehicle activity.</p> <ul style="list-style-type: none"> ▪ New developments should be required to support transit connections ▪ Expanded network of sidewalks and crosswalks to improve pedestrian access ▪ Support local Clean Air Plans, Policies and Programs ▪ Only fund transportation projects that do not support sprawl ▪ Promote SMART Growth 	<p>In SIP as TCMs 10, 27 and 28. MTC supports local efforts to combine transportation and land use solutions through its Transportation for Livable Communities planning and capital grants program funded in the TIP. Arterial improvement projects typically include sidewalks and measures to provide pedestrian access. Also proposed for inclusion in updated Ozone Attainment Plan as TCM C (Transportation for Livable Communities), which would extend program beyond current TEA 21 expiration of 2003.</p> <p>ABAG, in conjunction with MTC and regional agencies, is developing an alternative land-use scenario (SMART Growth scenario) for regional planning.</p> <p>Local jurisdictions, not MTC, have authority to condition development approvals. Suggestion that MTC not support transportation projects that promote sprawl lacks a nexus to air quality. Suburban development and job growth can work to lower VMT by shortening commute trips for workers in these areas as has been shown in prior Census data. Some transportation expansion projects may be necessary to achieve non-air quality goals or are mandated through voter approved County sales tax measures for transportation improvements.</p>	<p>Unknown given broadness of measure. Such efforts generally apply to new developments, as noted in Section 108(f) description. Given new development represents a small portion of overall regional development, such programs and ordinances will have low near-term impact on overall emissions</p> <p>Effects of SMART Growth scenario (under development) on emission cannot be determined at this time and most of effects would be beyond the 2006 attainment date.</p>	<p>MTC can provide incentives and guidance, but cannot mandate local ordinances or programs.</p> <p>Using MTC funding authority to force local regulations that ostensibly reduce VMT would over step authority assigned to MTC by state legislature</p> <p>Further, Section 131 of the Clean Air Act specifically states "Nothing in this Act constitutes an infringement on the existing authority of counties and cities to plan or control land use, ...nothing... provides or transfers authority over such land use"</p>	<p>Yes; however, see discussion on Authority.</p>	<p>Elements of measure included in SIP.</p> <p>Updated Ozone Attainment Plan would add new TCM that recognizes ongoing efforts (TCM C-Transportation for Livable Communities). Programs provide an incentive program for local entities to design and implement pedestrian/transit friendly developments.</p>

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
14 Programs for new construction and major reconstruction of paths, tracks, or areas solely for use by pedestrian or other non-motorized means of transportation when economically feasible and in the public interest. For purposes of this clause, the Administrator shall also consult with the Secretary of the Interior	<p>Proposed for inclusion in updated Ozone Attainment Plan as new TCM B (Bicycle/ Pedestrian program).</p> <p>Also in Baseline since a number of localities around Bay Area have extensive bike/trail systems. Supported through locally funded initiatives and MTC's TLC program, which can improve pedestrian and non-motorized circulation. (See discussion for Measure 10)</p>	<p>Minor—in the range of up to .03 to .05 tons/day. Use of dedicated bicycle/ pedestrian paths account for a small proportion of the roughly 10% of daily trips made by bicycles and walking. However, opportunity exists for increasing emission reduction benefits.</p>	<p>MTC (partial) through funding incentives.</p>	<p>Yes</p>	<p>Addressed in new TCM B (Pedestrian/ Bicycle program).</p>

Section II: Review of other potential TCMs¹⁵

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
15 Intermittent Control Measure/Public Education <ul style="list-style-type: none"> Freeway speed limit enforcements on high ozone alert days Spare the Air Campaign 	<p>Measure is currently operating as the BAAQMD's Spare-the-Air program, thus in the Baseline. EPA regulations limit the amount of emission reduction assumed for voluntary episodic control measures (maximum of 3 percent of the emissions reductions needed to attain the standard), and require enforceable backup strategies. Further, the monitoring of effectiveness, which is required if such measures were included in SIP, is difficult to perform. This measure would continue in the Baseline.</p> <p>Freeway speeds in excess of 55 mph may produce disproportionately high levels of ozone precursors.</p>	<p>Difficult to ascertain without detailed survey information. (See G. Harvey "Transportation Control Measures for the San Francisco Bay Area: Analysis of Effectiveness and Costs", July 1991)</p> <p>High-speed travel on freeways could be a significant source of emissions, but needs further evaluation using the latest motor vehicle emission factors.</p>	<p>MTC and BAAQMD support Spare the Air program through CMAQ and TFCA funding.</p> <p>Enforcement of episodic speed limits for predicted high ozone days would require additional funding resources and statutory authorization.</p>	<p>Likely, but how the most effective elements such as freeway speed enforcement can actually be done needs to be further studied before a definitive answer can be known.</p>	<p>Spare-the Air program not proposed for inclusion in updated Ozone Attainment Plan; however, strategy ongoing in Baseline.</p> <p>Propose a "Further Study" measure to consider air quality impacts due to enforcement of speed limits on high ozone alert days.</p>

¹⁵ Measures shown in this section are from proposals made for 1999 draft and final Ozone Attainment Plan, proposals made at an April 27th MTC sponsored workshop on TCMs for the updated Ozone Attainment Plan at workshop, and a review of TCMs in the 1997 Bay Area Clean Air Plan, comments made at an May 30th workshop on the Draft Ozone Attainment Plan, comments from EPA staff, review of potential TCMs in EPA's TCM database (on EPA's website, and TCMs contained in the South Coast Air Quality Plan

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
16 Conduct Demonstration Projects <ul style="list-style-type: none"> Low emission vehicles Electronic Toll Collection 	<p>A state Clean Air Plan TCM that promotes demonstration projects. Specifically cited are electronic toll collection and low-emission vehicles.</p> <p>Electronic toll collection (FASTRAK) has been implemented on all Bay Area toll bridges and is in the Baseline (see discussion under “11”). Low emission vehicle projects are being funded by the BAAQMD and are mandated by the California Air Resources Board for the entire California vehicle fleet. Therefore, inclusion in the Bay Area SIP is unlikely to accelerate the attainment date.</p>	<p>Varies. Depends upon actual project. Demonstrations in themselves have little impact on regional emissions. Their benefit occurs when demonstrations prove feasible and are implemented.</p>	<p>Varies. Depends upon actual project and project sponsor.</p>	<p>Varies. Demonstration projects are intended, in part, to test the economic and technical feasibility</p>	<p>Not proposed for inclusion into the updated Ozone Attainment Plan. FASTRAK is in the Baseline. Manufacture of low emission vehicles required pursuant to California ARB rules and regulations.</p>

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
17 Pricing <ul style="list-style-type: none"> Higher bridge tolls Congestion pricing Higher gasoline taxes Variable pricing on Spare-the-Air days or during ozone season (gas tax, tolls, other) 	<p>While prior analysis have indicated pricing very effective for changing travel behavior and, thus, reducing emissions pricing must be relatively high to do so. Gasoline costs fluctuate with demand/supply, but are currently the highest in recent time, without additional taxes.</p> <p>Congestion pricing has been studied in several corridors (Bay Bridge, Route 101 in Sonoma and Marin counties, and I-680, which is currently underway). Currently no legislative support is evident. Past efforts to find a legislator to carry a bill have not been successful.</p> <p>Legislature is considering extending the current \$2 bridge toll beyond 2008 (its current expiration date) for earthquake retrofit purposes.</p>	<p>Yes, when prices set sufficiently high.</p> <p>Higher bridge tolls would, however, affect only a modest proportion of regional travel. Congestion pricing would also be corridor-specific and affect a portion of regional travel.</p> <p>Acceptable levels for a regional gasoline tax may be in the 2-3 cent range, which would have limited affect on driving.</p>	<p>MTC has authority to propose to the voters a 10-cent gasoline tax increase, but polling indicates limited voter support (under state law, a 2/3 voter approval required).</p> <p>MTC may recommend, but state legislature must approve bridge toll increases including congestion pricing.</p> <p>State legislature has authority to impose smog-based vehicle registration fees or increase state/federal gas taxes.</p>	<p>Unknown. Some measures that involve large-scale price increases, could have adverse social and economic impacts</p>	<p>Not proposed for inclusion into the updated Ozone Attainment Plan.</p> <p>Given extensive policy discussions required and length of time necessary for consensus, it is unlikely these measures would advance attainment. Also voter or legislative outcome cannot be assumed.</p>

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
<p>18 Parking Reform</p> <ul style="list-style-type: none"> ▪ Paid parking at all work sites ▪ Peak period fees ▪ Change parking requirements for new development ▪ Paid parking at all transit stations ▪ Park and Ride lots ▪ Expand employer Parking cashout programs 	<p>Past studies by MTC indicate that the cost of parking is a significant factor in the mode choice decision. Parking restrictions or significant fees can impact auto trips, VMT and thus air quality.</p> <p>Most parking supply is subject to private business or municipal control. Measures that would restrict or charge for parking are also under private or municipal control, except for the state mandated parking cashout program, which applies to certain types of business parking space. Issues with imposing parking charges at employer sites, include the overall impact on business in terms of attracting and retaining employees, creating economic advantage for some employers if all employers are not required to have parking fees, and the effect on, local decision making and business/ labor agreements.</p>	<p>Yes. Prior MTC analysis has demonstrated the impact parking charges at employer sites have on air quality emission reductions.</p>	<p>State legislature has not granted any of the co-lead agencies policy or program authority to intervene in the area of parking fees. Parking ordinances, charges and development ratios are under the control of local municipalities. State law already requires private employers who lease parking to provide a parking cashout.</p> <p>MTC has indirect authority to condition certain funding approvals subject to caveats under "General Comments" However, legislature has prohibited imposing trip reduction strategies on employers, either directly or indirectly.</p>	<p>Technical ability to impose parking charges exists at the local level, particularly in relation to publicly owned space.</p> <p>Economic impacts on local agencies/ employers, and retail business that depends on an adequate supply of inexpensive parking unknown, but potentially adverse. New parking regulations would create new enforcement responsibilities and costs of an unknown magnitude.</p>	<p>No measures proposed for updated Ozone Attainment Plan. However, propose a "Further Study" measure to consider a Parking Charge Management Program, which will review parking, policies and pricing/ incentive options.</p> <p>Time necessary to obtain commitments from over 100 Bay Area cities and counties and numerous Bay Area businesses would likely prevent advancement of the attainment date.</p> <p>Parking cash out demonstration would be a further study measure.</p>

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
<p>19 Imposition of TCMs through indirect application of MTC authority. Concept is for MTC to impose TCMs through conditioning funding of federal or state money and/ or grant approvals.</p> <ul style="list-style-type: none"> Only fund transportation projects within cities and counties that control growth or have "smart growth" Only fund transit expansion in cities/counties where transit incentives are offered (cash out, commute checks) Only fund transportation system expansion in cities where market rate parking is in effect 	<p>While many of the specific control strategies have been discussed under other headings, the method for implementing these strategies is significantly different in this TCM. Rather than accomplishing air quality improvements through providing travel alternatives and incentives, this measure would be imposed through withholding of transportation funding subject to MTC control based on some preset criteria.</p> <p>There are numerous policy and practical issues that arise. Some transportation services may be necessary, regardless of air quality issues, to comply with Federal, State regulations, assure funding equity, or meet economic and environmental goals. Such a withholding policy would prohibit MTC's ability to address these goals. Many transportation projects serve travelers outside the jurisdiction of a particular municipality, and thus could unfairly penalize these travelers. A blanket policy could have other unintended impacts and would overstep MTC statutory authority with respect to local control, and business/ labor agreements.</p>	<p>Unknown. While there could be some air quality benefits, there could also be adverse affects from delaying air quality beneficial projects until conditions are met.</p>	<p>MTC has certain statutory authority to condition funding approvals, but such conditions have been applied to specific transportation projects, related to MTC's requirements to find these projects consistent with the RTP. Imposition of conditions, which would have effect of usurping local control, would likely be challenged.</p> <p>MTC conditions would have no effect on substantial number of transportation projects and programs, which are locally financed. These include sales tax revenues, fares, direct gas tax subventions and property taxes. Thus, ability to control not complete.</p> <p>MTC denial of funds based solely on potential and undefined air quality impacts would result in a significant extension of MTC authority without statutory foundations, and delay other worthwhile projects.</p>	<p>Unknown. The proposed requirement may be challenged or in conflict with state law.</p> <p>Requirement may be economically infeasible for certain businesses subject to requirements.</p> <p>"Regulatory" control measures may have perverse impacts and result in regulatory costs, compliance/ monitoring costs and unanticipated impacts.</p>	<p>No change. Significant legal and practical considerations would make timely implementation difficult and therefore unlikely to advance attainment date.</p>

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
20 Special Events Transportation	<p>Plan for improved mass transit during special events such as sporting events, entertainment events, etc.</p> <p>Ongoing special events of a minor nature (sporting events, concerts) typically are located at locations with mass transit (Oakland Coliseum, PacBell Park, San Jose arena) or incorporate mass transit planning. Major events are addressed when announced.</p>	<p><i>De minimis</i>. Likely less than .01 tons/day. By its nature special events are intermittent and involve only a small percentage of Bay Area population. Very major events (World Cup soccer and Olympic events) involve massive planning by MTC and other transportation agencies, and may have significant impact on emissions for the duration of the event, but their ongoing emission reduction benefit remains small. The region is making a bid for the 2012 Olympics, and, if successful, MTC will play a lead transportation-planning role.</p>	Yes	<p>Lack of transit operating funds constrains the ability to increase transit services for numerous special events. MTC typically can coordinate and lobby on behalf of operators for transit assistance for very major events.</p>	<p>No change. Not recommended as a control strategy due to the <i>de minimis</i> emission benefit likely to be realized given the intermittent nature of such events.</p>

Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
21 Transit Access to Airports	<p>The Bay Area's Regional Transportation Plan includes a number of very significant projects to improve transit access to airports. Perhaps the most significant is the BART extension to the San Francisco Airport. The air quality benefit due to this project is not captured by existing MTC travel models, which do not have air passengers as a separate trip purpose. Therefore these emission estimates need to be made "off model", using prior studies. Thus, we anticipate additional air quality benefits will accrue to the region when the BART to San Francisco Airport extension is completed and in operation in 2002.</p>	Yes	Yes	Yes	<p>Include a new TCM E: Transit Access to Airports, which takes credit for previously unaccounted for trips to the San Francisco Airport due to the BART to SF Airport extension.</p>

Section III: Proposed TCMs Per Comments Made In May 30th Workshop Or In Written Comment Letters

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
1. David Schonbrunn -Comment Letter to MTC April 27th	<p>Establish a Commuter Choice program for agency employees (parking related suggestions):</p> <ul style="list-style-type: none"> ▪ Reduce parking ratio requirements or maintains a "comparable" reduction in SOV commuting. ▪ Require local ordinance to make residential and commercial rental property parking available only by separate lease ▪ Implement market-based charges for agency-owned public parking lots. ▪ Raise commercial lot parking tax for peak period. 	See discussion for Measure 18, Section 2				

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
2. David Schonbrunn- Comment Letter to MTC April 27th	<p>2) Require TDM/TSM commitments by requiring any agency receiving funds for improvement project to:</p> <ul style="list-style-type: none"> Make a permanent employee Commuter Choice program a mandatory condition of approval for any land-use entitlement or use permit for an employment site with 10 or more employees Require Commuter Choice programs to meet minimum requirements established by MTC. 	<p>"Regulatory" control measures may have perverse impacts (i.e., result in regulatory costs, compliance/monitoring costs and unanticipated impacts).</p> <p>See discussion for Section 2, Measure 19.</p>	Unknown. Many agencies have such programs already.	<p>California State Law prohibits employee based trip reduction ordinance programs (SB 437). To the extent this proposal conflicts with state law, it would be unenforceable.</p> <p>Local jurisdictions must determine appropriate traffic mitigation measures for new development. MTC does not have authority to infringe on these local decisions</p> <p>The majority of transportation funding is locally generated and controlled, thus, MTC related conditions would not apply to many transportation fund sources such as sales tax revenues, fares, direct gas tax subventions and property taxes.</p>	<p>Unknown. The proposed requirement may be challenged or in conflict with state law.</p> <p>Requirement may be economically infeasible for certain businesses</p>	<p>No Change.</p> <p>While measure suggested is somewhat different from employer based trip reduction programs (see analysis for suggested TCMs 3 and 4) in implementation, same legal issues are raised. Therefore, likely to conflict with existing law.</p> <p>Baseline and SIP contain incentive programs such as riderssharing services (TCM 5)</p>

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
3. David Schonbrunn -Comment Letter to MTC April 27th	<p>3) Require TDM/TSM commitments by requiring any agency receiving funds or improvement project to:</p> <ul style="list-style-type: none"> Require major new development to provide permanent connections to transit. Provide incentives to locate major new development near frequent transit service 	<p>Many city ordinances require transit amenities as mitigation.</p> <p>MTC frequently comments on development EIRs to encourage such efforts. MTC's has established a Transportation for Livable Communities/ Housing Incentives grant program to encourage transit oriented designs.</p>	<p>Modest. Such efforts generally apply to new developments. Given new development represents a small portion of overall regional development, such programs and ordinances will have low impact on emissions</p>	<p>Authority for specific design and location of development is based with local municipalities.</p> <p>Requiring developers or employers to commit to long term funding to operate a transit connection may be economically infeasible.</p>	<p>Transit connections are often in EIRs for new development as mitigation. However, requirement to fund transit service may be economically infeasible for certain businesses.</p>	<p>Proposed for Updated Ozone Attainment Plan as incentive approach, not regulatory, as new TCM C (Transportation for Livable Communities/ Housing Incentives Program), which provides funding for local entities to design and implement pedestrian/ transit friendly developments.</p>

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
4. David Schonbrunn -Comment Letter to MTC April 27th	<p>4) Require TDM/TSM commitments by requiring any agency receiving funds or improvement project to:</p> <ul style="list-style-type: none"> Secure local agency support for assisting surface transit vehicles to move faster through traffic, thereby making transit more competitive with SOV (through signal preemption for transit vehicles) 	<p>Local agency support is not key determinant. Transit operator must have program to track location of buses and initiate a signal preempt if buses are behind schedule. This is a major capital investment for an operator which must be weighed against other capital needs. However, several transit signal preemption projects have been funded in Alameda, Napa and Santa Clara counties.</p>	<p><i>De minimis.</i> Less than 0.01 tons/day. Related to effect of improved schedule adherence on increasing transit ridership for specific routes where preemption is available.</p>	<p>MTC has authority to provide funding incentives to support transit programs and improvements. It is not clear that a regulatory approach as suggested is warranted, as transit operators routinely work with local jurisdictions on transit issues.</p>	<p>Signal preemption is technically feasible, but may not be economically feasible, given capital investment required, for some operators.</p>	<p>Not proposed as new measure. However, ongoing MTC signal improvement programs (TCMs 24 and 25) allow for transit signal preemption projects as supported by local agencies.</p>

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
5. David Schonbrunn -Comment Letter to MTC April 27th	<p>5) Provide more funding for urban transit service,</p> <ul style="list-style-type: none"> Set ridership targets Alter funding equity targets 	<p>The level of transit funding is set by the regional transportation planning process. A transit operator's funding is affected by the need for replacement of vehicles and facilities and, where expansion of service is contemplated, by the ability of the transit operator to sustain the service with the resources available. (See RACM Analysis for Section 1, Measure 1 on Baseline transit programs.)</p> <p>Transit ridership does not necessarily increase with transit funding. Ridership is strongly impacted by economic factors such as job and population growth</p>	<p>Varies: Transit system expansion, which attracts significant new riders from autos, can reduce emissions. However, expansion in non-prime transit markets can result in increases in NOX emissions.</p>	<p>Varies. MTC has authority over most transit capital funding and a smaller proportion of operating funds. In several instances, the share of operating funds provided to transit properties is determined by state legislation and alteration of these formulas would require legislative action. MTC has no direct authority over ridership.</p> <p>The allocation of operating funds to specific routes and services is primarily controlled and directed by transit operators in accordance with statutory laws and regulations. These funds (which are fully committed to current and committed transit operations) include sales taxes, property taxes, TDA funds and fares. Funding to increase service would require new operating funding</p>	<p>Yes. However, alterations of funding would require new revenue sources and new equity targets between transit operators would generally require state legislative approval.</p> <p>Achievement of specific ridership targets cannot be controlled, given wide range of variables that affect transit usage.</p>	<p>MTC has continuously advocated for increased transit funding. Creating a new TCM would not change this effort.</p>

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
6. David Schonbrunn -Comment Letter to MTC April 27th	Congestion pricing on bridges. Use funds for transit	MTC undertook a feasibility study in 1993, which recommended a demonstration project on the SF-Oakland Bay Bridge. However, increasing tolls in the peak period would require legislative approval, and MTC could not find a sponsor for the bill.	Modest. Bridge travel is only a portion of regional travel. Higher peak tolls may merely shift some autos to offpeak and not reduce emissions. However, revenues could be used to enhance transit service which could have air quality benefits.	No. MTC would need State legislative approval and federal DOT approval to implement	Unknown. Technical feasibility remains to be tested. That was the purpose of the demonstration project	Not proposed based on history of issue and lack of MTC authority to make an enforceable SIP commitment. While MTC has conducted studies, legislative and public support does not exist. Thus this measure is unlikely to advance the attainment date.
7. David Schonbrunn -Comment Letter to MTC April 27th	Smart Growth Initiative: Commit a percentage of funds and convene advisory group.	Studying land use is not a TCM that will affect the attainment in the needed timeframe. This fact notwithstanding, such efforts are underway under the sponsorship of ABAG, which is developing a regional smart growth land use plan.	To be determined based on the land use scenario developed by the SMART Growth project.. The potential for emission reductions depends on the magnitude of change a SMART Growth scenario would represent compared to existing land use patterns predicted by ABAG.	Authority for any actual changes in land use patterns would rest with local government.	Yes	Land use issues are primarily addressed in new TCM C (Transportation for Livable Communities) and in the recommendations for further study.

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
8. David Schonbrunn -Comment Letter to MTC April 27th	Reestablish legislative authority for Trip Reduction Ordinance: MTC and BAAQMD to lobby for authority to charge for parking spaces	Such efforts are not likely to be successful, given the legislative history on this topic. However, the concept to encourage parking charges has been incorporated into a further study measure.	None, as a legislative initiative. However, see discussion in this section on the emission impacts of parking charges and incentive programs.	If legislative approval re-granted, would be administered by Air District. The state legislature has prohibited mandatory trip reduction ordinances	Not Applicable.	See "RACM Conclusion" for suggested TCMs 3 and 4.
9. David Schonbrunn -Comment Letter to MTC April 27th	9) Indirect Source Review: BAAQMD review major transportation projects	Currently transportation projects are required to undergo several levels of air quality analysis, including a regional conformity analysis for projects in the RTP and TIP; Projects subject to CEQA and NEPA undergo a project-level air quality analysis, which includes identification of mitigation strategies	Unknown. Unclear how proposed activity will reduce emissions. No direct link to reducing emissions proposed.	MTC and the BAAQMD typically comment on transportation environmental documents. Transportation projects do not fall under the category of indirect sources.	Yes	No change. Transportation projects already subject to air quality review at several levels.
10. David Schonbrunn -Comment Letter to MTC April 27th	Major Investment Study requirements: Require analysis of LUTRAQ land-use alternative.	Not a TCM. Major Investment Study guidelines prepared by MTC and Bay Area transportation agencies already allow for alternative land-use scenarios. However, without linkage to a policy commitment (i.e., local commitment to change land-use policies), such analysis is only informative. ABAG is working with regional agencies to develop a 'Smart Growth' land use vision for the Bay Area. Once adopted by ABAG, such a scenario will be the basis for analysis of transportation projects.	No. Requirement to analyze has no emission impacts. No direct link to emission reductions proposed.	Yes. No change is needed for analytical purposes. MTC has no requirement to use other than ABAG's adopted forecasts. However, MTC has voluntarily conducted three such regional analyses in the past.	Not applicable	No change. Current practice permits such analysis.

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
11. David Schonbrunn -Comment Letter to MTC April 27th	Improve MTC's transportation ability to accurately predict future conditions	Not a TCM. MTC is continually in the process of improving its transportation planning capabilities through acquisition of new travel data, peer and public review of its transportation forecasting models, etc.	No. Proposal has no air quality emission reduction capability.	MTC develops the model.	Not applicable.	No change Current practice permits such improvements.

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
12. Norman Rolfe-San Francisco SPUR organization -Comment made at May 30 th workshop	Spend funds to electrify bus routes, Caltrain. Rebuild Transbay Terminal	Capital expenses for electrification would be significant, and there are currently insufficient local funds to implement electrification. Both Caltrain electrification and MUNI transit enhancements are included in the long-range Regional Transportation Plan. Rebuilding of the Transbay Terminal has been studied and a concept plan has been developed. San Francisco is now trying to secure funding., but project would not be complete by 2006.	Since electrification is appropriate for only a few major bus corridors, the air quality effects, related to NOx, would be small. Electrification of Caltrain cannot be achieved by 2006 since there is a funding shortfall. Thus, potential emission reductions are beyond the attainment period. Rebuilding of Transbay Terminal will have no air quality benefits unless accompanied by expanded transit service (see discussion for Measure 1, Section 1), since it will simply replace an existing facility.	Yes	Yes, provided sufficient funds can be identified.	No change. Not available for reducing emissions between 2000 and 2006.

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
13. John Holtzclaw-Sierra Club-E-mail comment dated 6/1/01	Fund only transportation system expansions within city or counties that have zoning to stop sprawl growth and implement smart growth	<p>See prior responses for Measure 19, Section 2 and response above to Mr. Schonbrunn comments. Regarding transit expansion, MTC has adopted Resolution No. 3357 (Regional Transit Expansion Program Criteria), which includes criteria requiring documentation of supportive land use policies and evaluation methodology for transit expansion projects.</p> <p>ABAG, in conjunction with MTC and other regional agencies, is developing an alternative Smart Growth scenario for regional planning. Once adopted this scenario would be incorporated into regional transportation and air quality plans.</p>	Impact on emissions could be adverse, as transportation improvements that are potentially beneficial from an air quality standpoint could also be stopped. There could also be equity issues in that these conditions would penalize travelers from cities who had complied and most rely on transportation facilities in cities that do not.	MTC has authority to condition certain funding approvals, related to a project's consistency with the Regional Transportation Plan. However, like measures proposed by other commenter above, this has potential legal issues associated with local control and potential that MTC is overstepping its authority.	Unknown. May have significant economic impacts by limiting transportation infrastructure.	<p>Significant practical and legal issues. SMART Growth is being studied and will produce a regional consensus on how to proceed on this issue next year. A new TCM C (Transportation for Livable Communities/ Housing Incentive Program) has been proposed for the updated Ozone Attainment Plan to encourage so-called smart growth projects.</p> <p>Also, a "Future Study" measure would evaluate ways to enhance the Housing Incentive Program.</p>

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
14. John Holtzclaw-Sierra Club-E-mail comment dated 6/1/01	<p>Fund only transit expansion within cities or counties where 80% of employees are offered parking cash out for commuter check.</p> <p>Fund only transportation system expansions within cities or counties where 80 percent of non-residential parking places are metered or otherwise charged for at market rates.</p>	See discussion for Measure 18, Section 2				

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
15. John Holtzclaw-Sierra Club-E-mail comment dated 6/1/01	Expand no highways or build new high occupancy vehicle lanes that are not bus only.	The SIP currently contains two TCMs that encourage carpool use consistent with Section 108(f) of the Clean Air Act, which identifies carpool lanes as an effective TCM. For this reason, prohibition of carpools from using lanes would be inconsistent with existing TCMs in SIP, which do not restrict use of HOV lanes.	Unknown. Would depend on the capability of buses using lanes to generate new riders, which in turn would be affected by specific markets served, and travel time savings offered by buses. If bus-only lanes resulted in increased congestion in mixed flow lanes, emission improvements would not occur.	Limited. Few new mixed flow highway lanes are proposed or under construction. Most regional highway expansions are at spot locations to reduce bottlenecks and improve safety, or add carpool lanes. Several highway projects have been approved by voters in local sales tax elections, with project definitions that did not include bus-only facilities. Individual highway projects are evaluated through the state and federal environmental process, and this is the appropriate venue to discuss alternative operational strategies for specific facilities, given existing and future conditions in the travel corridor.	New lanes may be in areas where it is not possible to fill a bus. Further, there would be operational issues where these lanes join existing carpool lanes, which could cause confusion for carpools who would need to exit lanes where bus only lanes start. This could lead to a negative public reaction. Highway projects often address local congestion relief (bottlenecks), improve safety or improve local access. Thus, to subject all highway projects to these conditions could result adverse safety and economic impacts, and represent a cost-inefficient use of public funds, if the lanes are poorly utilized by buses State law (SB 45) requires State Transportation Improvement funding (the major funding mechanism for roadways) equity targets be achieved within counties: Prohibiting certain project types may cause short-term problems meeting state equity funding requirements for certain counties within this region.	Recommended as a further study measure.

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
16. Rebecca Kaplan-Bay Area Transportation Land Use Coalition-Comments made at May 30th Workshop	Require bike parking Have better transit interconnects and information	MTC is adding a bike/pedestrian TCM (TCM B) Transit coordination and interconnections are addressed in existing TCMs. See discussion for improved public transit measures 1a through 1f, Section 1.	No for bicycle parking. See other Sections for transit coordination RACM.	Local jurisdictions can require bike parking when they approve new developments.	Yes	Not included because of minor emission reductions and fact that local authority already exists.
17. Nancy Jewell Cross	Have bicycle related TCMs	MTC is adding a bike/pedestrian TCM (TCM B). See Measure 10, Section 1 for further discussion of bicycle TCMs				
18. José Luis Moscovich, Executive Director, San Francisco Transportation Authority, May 3, 2001	MTC should develop a parallel TCM to the Regional Express Bus Program, which includes bus rapid transit as a strategy.	The Regional Express Bus Program does allow for funding bus rapid transit services on arterials.	Minor, since number of rapid bus corridors is limited.	Yes	Yes	Included as new TCM A: (Regional Express Bus Program)

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
19. José Luis Moscovich, Executive Director, San Francisco Transportation Authority, May 3, 2001	MTC should include increased tolls on Bay Area bridges as a TCM. Caltrain electrification should be considered a TCM	See Measure 17, Section 2 for RACM analysis of pricing strategies. Increasing tolls could impose a burden on commuters who do not have other options for travel and could, if set too high, affect the economic attractiveness of San Francisco as a place to work, shop, and recreate. See Measure 12, Section 3 for RACM analysis of Caltrain electrification				
20. Mike Bullock: e-mail comment 5/13/01	Propose/ support parking cashout programs	Parking cashout for leased parking is required under state law for employers having such space.	See discussion for Measure 18, Section 2			
21. Roy Nakadegawa : e-mail comment 4/30/01	MTC should implement pricing strategies.	See discussion for Measure 17, Section 2				
22. Roy Nakadegawa : e-mail comment 4/30/01	BART should charge for parking. Implement shuttle services.	See discussion for Measure 18, Section 2				

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
23. Roy Nakadegawa : e-mail comment 4/30/01	<p>MTC needs to develop better transportation management of development and land use as priority in allocating funds.</p> <p>Transportation planning needs to be integrated to land use regionally.</p> <p>Allocate funds based on "sound" zoning.</p>	<p>The regional SMART Growth project will identify what can be achieved in the way of new land use assumptions about the future. Once adopted by ABAG these will be used as the basis for transportation planning and decisions.</p>	<p>Unknown, but not in the short term of the attainment plan.</p>	<p>Local agencies have authority. MTC can facilitate with programs like TLC and HIP.</p>	<p>Yes if supported by local jurisdictions and their plans and zoning powers.</p>	<p>Significant practical and legal issues if MTC were to condition transportation funding as discussed in other measures above. A new TCM C (Transportation for Livable Communities/ Housing Incentive Program is proposed for the updated Ozone Attainment Plan to encourage so-called smart growth projects.</p> <p>See also Section 7: Future Planning. Smart Growth is identified as a future planning effort.</p>

Section IV: Review of Comments from Community Meetings on 2001 Ozone Attainment Plan

This section is a review of measures suggested at community meetings held in East Palo Alto, Richmond, San Francisco, San Jose, Livermore, and Vallejo between August 23 and August 30, 2001 and in letters received after initial adoption of the 2001 Plan by the co-lead agencies on July 18, 2001.

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
24. CBE Letter to CARB August 9, 2001	<ul style="list-style-type: none"> Require transit operators and MTC adopt plans and provide sufficient funding to increase transit ridership by 15% regionally and 25% in low income communities 	Similar to previous RACM suggestions for transit (see Section I, Review of CAA Section 108(f) measures, Item 1). Preparation of plans would identify strategies that might be helpful to achieve further ridership increases; however, actual emission reductions would depend on the specific strategies and whether new funds would be required to implement them.	None, unless strategies could be funded. Deploying new service that is underutilized could have some offsetting adverse air quality impacts.	Transit operators	Increasing ridership by the amounts stipulated would likely require substantial new funding. Requiring MTC to provide sufficient funds to implement plans would not be economically feasible, because no such new funding currently exists.	Not reasonably available; no source of operating funds currently available that could generate revenues sufficient to meet stipulated targets.

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
25. CBE Letter to CARB August 9, 2001	<ul style="list-style-type: none"> Require new developments to provide and fund permanent connections to transit 	Similar to previous RACM suggestions for transit (see Section I, Review of CAA Section 108(f) measures, Item 13).	Unknown, since the universe of future projects for which this type of measure might apply is not known.	Local governments (over 100 in Bay Area) have approval authority over new development. MTC and transit operators can encourage, but not require, these services where they make sense.	May not be economically feasible for some developments that are not near transit, or even for developments that are, if the development must pay the full capital and operating cost of the transit connection, which can be substantial. Such development costs and long term financial commitments could discourage needed housing or commercial improvements in a community.	Not reasonably available due to potentially significant region wide economic impacts.
26. CBE Letter to CARB August 9, 2001	<ul style="list-style-type: none"> Require large employers to subsidize transit costs of their employees equivalent to parking subsidies 		Unknown. Would vary depending on employer size and number of employees that have transit as a reasonable option for their commute	California law prohibits regulation of employers for purpose of reducing employee trips (Health and Safety Code Sec. 40717.9). Such subsidies cannot be required under current state law, except in the limited situations where parking cash out legislation applies.	Strategy may also be economically infeasible for some employers, depending on number of eligible employees.	Not reasonably available beyond existing state law

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
27. CBE Letter to CARB August 9, 2001	▪ No net increase in vehicle miles of travel per capita.	Proposed measure does not indicate a specific strategy. Limiting future growth in VMT or VMT per capita in the face of expected population and job growth is problematic. Reducing the rate of growth in VMT is a more realistic expectation, but VMT growth will continue to be influenced much more by economic growth than by TCMs. Strategies to achieve this goal would have to involve extreme pricing or regulations on travel.	Yes, if such a goal could be achieved	None, at levels of control needed to have no net increase effect VMT.	No. Strategies that would result in no increase in VMT or VMT per capita are likely to have severe economic impacts because of pricing or regulatory approaches.	Not reasonably available due to economic impacts and legal issues that would likely take significant time to resolve, and therefore not advance attainment date.
28. CBE Letter to CARB August 9, 2001	▪ No backsliding on TCMs; Replace TCMs 6, 11, 12, and 16 with equivalent measures.	EPA's August 28, 2001 action to disapprove the proposed 1999 SIP also eliminated these TCMs; emission reductions are in baseline and do not need replacement.				Elimination of TCMs was made according to criteria in CAA and do not need replacement.
29. Public at various community meetings	▪ Stop collecting Bridge tolls to reduce emissions from stop and go traffic and vehicle idling.	FASTRAK on bridges is being implemented to collect tolls electronically and will not require vehicles to stop at toll booths. Tolls revenues are required to cover a multitude of bridge maintenance and seismic repair costs as well as providing funding for transit.	No, since demand on bridges exceeds capacity, cars would still be backed up on the bridges themselves. Where demand does not yet exceed capacity (e.g. Antioch and Richmond-San Rafael bridges) emission benefits of not collecting tolls would be de minimis and not collecting tolls might result in increased traffic.	Yes, Caltrans/State Legislature	Not economically feasible given the central role tolls play in financing bridge operations, maintenance and seismic retrofit; as well as transit in bridge corridors.	Not reasonably available given economic impacts and de minimis reductions in emissions.

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
30. Public at various community meetings	<ul style="list-style-type: none"> Provide more express bus service beyond the \$40 million in state Traffic Congestion Relief funding (TCRP) 	The existing \$40 million is capital funding is from the Governor's TCRP program and is for the purchase of new buses; transit operators must still have the financial capacity to operate the buses. Few, if any, operators have surplus funds available that could be used to significantly expand the \$40 million initial program when other system needs are considered (e.g., bus and facilities replacement, operating costs of other routes, etc).	Depends on the service or services provided if new funding identified. The routes that will be initially operated provide some of the best immediate opportunities for this type of service, and other potential services may not be as effective in generating new transit riders.	Yes, individual transit operators	Not economically feasible, since there is no source for additional operating funds to significantly expand the initial express bus system.	Expanded express bus service not reasonably available given existing financial constraints.
31. Public at various community meetings	<ul style="list-style-type: none"> Express buses on freeway shoulders 	Allow buses to use freeway shoulders to avoid congestion in adjacent lanes	No, de minimis since the number of freeway locations where shoulders could be used is expected to be very limited.	Caltrans would need to allow use of shoulders	Yes	De minimis air quality impacts
32. Public comment at Livermore meeting	<ul style="list-style-type: none"> Provide express bus service from under used Livermore area park and ride lots to Dublin/ Pleasanton BART station 	Idea would be to use several park and ride lots along I-580 to run frequent shuttles to BART's Dublin/Pleasanton lot, which fills up very early. Frequent shuttle service to BART, if provided by the local transit operator, would likely require new financial resources due to ongoing local service commitments.	No, would be de minimis for a single application, such as the Livermore area proposal.	Yes, transit operators	No, given lack of operating funds.	De minimis emission reductions.

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
33. Public comment at Livermore meeting	▪ Erect portable screens on freeways next to incidents to screen activity from passing traffic	Measure intended to avoid gawking resulting traffic slowdowns around incidents (disabled vehicles or accidents) by placing screen between incident and passing traffic; based on limited Caltrans experience with concept, it appears screen itself may cause slow downs as motorists attempt to see what is behind it.	No, de minimis	Yes, Caltrans or fire departments	Yes	De minimis emission reductions.
34. Public comment at Vallejo meeting; also in Trimlett letter to Air District of August 27, 2001	▪ Eliminate bottlenecks on freeways as a means to speed up traffic; concept includes freeways that do not have same number of lanes in both directions (e.g. Caldecott Tunnel)	Freeway bottlenecks can take many different forms, but in general, the highest priority improvements are currently included in MTC's Regional Transportation Plan and three year funding program (the TIP). The effects of these projects on traffic and emissions are modeled by MTC as part of the baseline. Major new projects that are not currently in regional plans and the funding pipeline would take many years to plan and deliver beyond the attainment deadline.	Depends on specific project.	Generally Caltrans for freeway projects, but may also include county traffic authorities who control local sales tax funds for transportation.	If projects not already identified in regional plans and programs, money would not be available.	New projects not included in the current emissions analysis would take a number of years to develop and deliver, and thus would not advance attainment date.
35. Public comment at Vallejo meeting	▪ Subsidize late night taxi service from transit	Would be minor inducement for transit use; may require new funding	No, de minimis given limited number of users such a service would likely benefit.	Transit operators if included as adjunct to existing services	Not economically feasible, unless new operating funds can be identified	Air quality effects would be de minimis
36. Leonard R. Trimlett letter to Air District August 29, 2001	▪ Increase signal timing programs	An existing TCM. MTC programs have already resulted in a significant number of signals being retimed throughout Bay Area. Funded signal timing projects are in the baseline. Another existing TCM will continue to fund periodic updates of signal timing plans to reflect changing traffic conditions over time.	Yes	Yes, individual local jurisdictions	Yes	An existing TCM.

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
37. Leonard R. Trimlett letter to Air District August 29, 2001	▪ Eliminate freeway carpool lanes to provide more capacity for all cars.	Notwithstanding the fact that HOV lanes are a statutorily identified TCM in the federal Clean Air Act, (and included in previous Bay Area air quality plans), an elimination of these lanes would foreclose future options to increase carpooling and express bus service on these lanes..	No, elimination of HOV lanes would discourage public interest in carpooling and express buses, eventually creating additional freeway traffic and congestion.	State Legislature/ Caltrans could decide to eliminate HOV lanes.	Yes	Because of potentially adverse air quality effects, elimination would not advance attainment date.
38. Public Comment at Livermore meeting	▪ Extend BART to Livermore	Extend BART to divert auto trips from heavily trafficked I-580 corridor. This project would take many years to plan and implement. No funding has been identified.	Depends on amount of auto diversion and whether some riders are diverted from other transit modes (e.g. express buses and ACE commuter trains)	Yes, BART	Project could cost as much as \$900 million; no funds have been identified	Would not accelerate attainment date
39. Public Comment at Livermore meeting	▪ Expand ACE service from San Joaquin County; connect ACE with BART	Similar to above, the purpose would be to divert auto trips in the I-580 corridor destined to the Tri-Valley and Silicon Valley to transit; additional funding needed to add trains and operate service; funding does not currently exist for expanded ACE or connecting ACE to BART	Depends on amount of service that can be provided; currently service carries about 2,500 people.	Yes, ACE and BART	Not economically feasible, due to lack of sufficient funds to expand service or connect BART and ACE.	Not economically feasible
40. Public Comment at Livermore meeting	▪ Limit truck traffic during commute hours	This strategy appears to be directed more at traffic congestion than air quality, since truck emissions would still be produced, but at different hours of the day.	No, de minimis if emissions not eliminated, but merely shifted in time of occurrence.	State Legislature and Caltrans	Economic impacts could be significant for operations of shippers and receivers.	Reductions would be de minimis

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
41. Public Comment at Livermore meeting	▪ Charge tolls for heavy trucks on I-580	Strategy would seek to reduce truck trips or cause a diversion of truck carried freight to rail. Tolls may or may not accomplish this objective, since any additional tolls/charges would likely be passed on to end user.	No, for reasons in previous column.	USDOT regarding tolls on interstate highway facilities; State Legislature and Caltrans	Potentially significant economic impacts if tolls are set high enough to discourage truck trips in corridor.	Not reasonably available given length of time needed to address political and legal questions relative to the attainment deadline and potentially significant economic impacts.
42. Public Comment at East Palo Alto meeting	▪ Provide free bicycles at train depots	Would seek to encourage non motorized access to train stations	No, de minimis, given small number of trips likely to be affected within the region	Yes, transit operators	Yes	Reductions would be de minimis
43. Public Comment at East Palo Alto meeting	▪ Provide equitable funding for transit between suburbs	Not clear what issue is being addressed with this suggested TCM. Various transit operators already provide suburb-to -suburb and inter city services.	Unknown	Depends on source of funding and who decides.	Not economically feasible if it requires funding significantly beyond current levels to transit operators.	Assuming TCM would ultimately involve significant new service, it would not be economically feasible.

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
44. Public Comment at Richmond meeting	▪ Speed up transit service to increase use	This suggested TCM involves portions of other TCMs, including regional express bus/rapid bus on arterials and signal coordination and/or preemption. Regional express buses operate on freeway HOV lanes to gain time advantages, several rapid bus projects are in the planning stages, and signal coordination plans (an existing TCM) will benefit both autos and transit on arterials.	Improved speed is one factor, but others also contribute significantly to transit use, such as fares, schedule reliability, safety/security, etc.	Cities, transit operators	Yes	Capability to speed up transit already exists in other existing TCMs.
45. Public Comment at Richmond meeting	▪ Transportation system management is coordinated and less costly	Transportation system management applies to a broad set of strategies for roads, transit, and customer programs. Suggestion is not defined well enough to evaluate	Yes, as a broad category	Depends on strategy	Generally yes, but depends on strategy	Suggestion not well enough defined.
46. Public Comment at San Francisco meeting	▪ Implement tolls for local roads	Tolls, if set high enough, may discourage some types of vehicle trips. Tolling all local roads would create significant economic and equity issues. Tolls have classically been used to finance some new roads, primarily freeway or expressway types of facilities, when other revenues are not available.	Yes, it tolls high enough	Local cities/counties who control roads	No, given the fact that there would need to be extensive investment in infrastructure to collect tolls and a plethora of coordination and equity issues with individual jurisdictions having their own policies about tolls. Unknown and potentially adverse economic impacts as well.	Not technically or economically feasible.

Commentor	Suggested Measure	General Comments	Significant source of emission reduction?	Authority to implement measure?	Economically and Technically feasible?	RACM Conclusion
47. Public Comment at San Francisco meeting	<ul style="list-style-type: none"> Put FASTRAK on all lanes on all bridges 	Speeding up cars through the toll plaza this would not significantly reduce emissions from stop and go traffic which would be backed up on the bridge itself. Also, some lanes would always need to be available for those bridge users who don't have FASTTRAK. (See also Item 30 in this section).	No, de minimis.	Yes, Caltrans	No, not technically feasible for all lanes	De minimis given that FASTRAK would not eliminate backups on the bridges themselves which would lead to increased emissions.
48. Public Comment at San Francisco meeting	<ul style="list-style-type: none"> Require flexible work schedules to spread out the commute 	Reduce congestion and thus emissions during commute period, by requiring employers to allow workers to arrive and depart outside the peak commute period. (See Section I, Item 3)	Potentially if significant numbers of auto trips shift out of the peak, resulting in freer flow of traffic, or use transit.	No, such requirements cannot be placed on employers under state law. Work schedule issues are the purview of individual companies and subject to their labor agreements.	Economic impacts on businesses required to extend hours of operations unknown, but potentially significant.	Not available, would need change in state law to require employers to use flextime.

TABLE 6
PROPOSED TRANSPORTATION CONTROL MEASURES

	DESCRIPTION	IMPLEMENTING AGENCIES	SCHEDULE
TCM #1 Support Voluntary Employer-Based Trip Reduction Programs	<ul style="list-style-type: none"> ■ Provide assistance to regional and local ridesharing organizations; advocate legislation to maintain and expand incentives (e.g., tax deductions/credits) 	MTC, Caltrans, cities, counties, CMAs, Air District	Ongoing
	<ul style="list-style-type: none"> ■ Provide assistance to employers, cities, counties: <ul style="list-style-type: none"> - Assistance in developing/enhancing employer programs; recognition of outstanding programs - Information and referral - Employer networks 	MTC's Regional Rideshare Program, CMAs, MTC, Air District	Ongoing
TCM #2 Adopt Employer-Based Trip Reduction Rule	<ul style="list-style-type: none"> ■ TCM DELETED - Sec. 40929 does not permit air districts to require mandatory employer-based trip reduction programs 		
TCM #3 Improve Areawide Transit Service	<ul style="list-style-type: none"> ■ Increase local bus service as revenues become available 	MTC, transit operators	Depends on funding
	<ul style="list-style-type: none"> ■ Support transit improvements defined in MTC's Regional Transportation Plan which serve current or planned high density areas with mixed land uses 	MTC, transit operators	Depends on funding
	<ul style="list-style-type: none"> ■ Improve transit access to airports 	MTC, transit operators, airports	Depends on funding
	<ul style="list-style-type: none"> ■ Replace transit buses with clean-fuel buses 	MTC, transit operators, Air District	Depends on funding

TABLE 6 (Cont'd)
PROPOSED TRANSPORTATION CONTROL MEASURES

	DESCRIPTION	IMPLEMENTING AGENCIES	SCHEDULE
TCM #4 Improve Regional Rail Service	■ Implement light rail on Third Street (Bayshore Corridor) in San Francisco	MUNI	Phase II
	■ Extend Caltrain to downtown San Francisco	Peninsula JPB, MTC	Phase II
	■ Extend Tasman LRT (12 miles, 19 stations)	SCVTA, MTC	Phase II
	■ BART to SF International Airport	BART, MTC	Phase II
	■ Implement light rail on heavily patronized routes in AC Transit's service area	AC Transit, MTC	Phase III
	■ Implement light rail expansion in Santa Clara County	SCVTA	Phase III
	■ Implement new commuter services: Santa Rosa to Larkspur, Vacaville to Oakland	MTC	Phase III
	■ Implement Fremont - South Bay rail connection	MTC	Phase III
TCM #5 Improve Access to Rail and Ferries	■ Improve feeder bus service to rail and ferries	Transit operators, MTC	Limited implementation ongoing; expanded implementation depends upon funding
	■ Improve bicycle and pedestrian facilities at stations and improve access to rail/ferry stations	MTC, transit operators	
	■ Increase private shuttles from transit stations to employment centers	Employers, TMAs, Caltrain, BART	
	■ Encourage BART and Caltrain to provide preferential parking for electric vehicles	MTC, Air District	

TABLE 6 (Cont'd)
PROPOSED TRANSPORTATION CONTROL MEASURES

	DESCRIPTION	IMPLEMENTING AGENCIES	SCHEDULE
TCM #6 Improve Inter-regional Rail Service	■ Implement additional interregional rail service in Capitol (Auburn-Sacramento-Oakland-San Jose) Corridor	Capitol Corridor JPB, Amtrak, MTC, Southern Pacific	Increase service from 4 round trips per day (current) to six round trips per day by 1999 and 10 round trips by 2003
	■ Implement commuter service between Stockton and San Jose	MTC, San Joaquin Regional Rail Commission, Alameda County, Santa Clara County	Start-up 1998
	■ Expand Amtrak's San Joaquin service between Stockton and Oakland	Amtrak, MTC	Phase III
	■ Implement new commuter service between Santa Cruz and San Jose	Unknown	Phase III
	■ Implement new daily service between the Bay Area and Eureka	Unknown	Phase III
	■ Consider high speed rail between downtown San Francisco and Los Angeles	High Speed Rail Commission	Phase III
TCM #7 Improve Ferry Service	■ Expand ferry service to San Francisco from Vallejo (2 new vessels) and Larkspur (high speed vessel)	City of Vallejo, Golden Gate Transit	Phase I
	■ Implement new service from Port Sonoma to San Francisco	Private operator, PUC	Phase III
	■ Implement new service between SF and Oakland airports	MTC	Phase III

TABLE 6 (Cont'd)
PROPOSED TRANSPORTATION CONTROL MEASURES

	DESCRIPTION	IMPLEMENTING AGENCIES	SCHEDULE
TCM #8 Construct Carpool/Express Bus Lanes on Freeways	<ul style="list-style-type: none"> Expand existing HOV network, based on HOV Master Plan Update, where beneficial to air quality. Air quality analyses should be performed for each project that include growth inducing effects of new highway capacity. Special attention should be paid to express bus operations to maximize benefits for transit. 	Caltrans, MTC	Subject to analysis of each segment
	<ul style="list-style-type: none"> Implement HOV support facilities--park & ride lots, special HOV ramps that provide direct connections, HOV bypass lanes at ramp meters, express bus service 	Caltrans, MTC, transit operators	All phases
	<ul style="list-style-type: none"> Monitor vehicle occupancy to maintain travel time advantages and stimulate increased transit use and the formation of new carpools 	Caltrans, MTC's Regional Rideshare Program	All phases
	<ul style="list-style-type: none"> Convert general purpose lanes to HOV to provide significant time savings for transit, allow projects to be implemented earlier or avoid entirely the cost and dislocation associated with freeway widenings. 	Caltrans	All phases

TABLE 6 (Cont'd)
PROPOSED TRANSPORTATION CONTROL MEASURES

	DESCRIPTION	IMPLEMENTING AGENCIES	SCHEDULE
TCM #9 Improve Bicycle Access and Facilities	■ Improve and expand bicycle lane system by providing bicycle access in plans for all new road construction or modifications	Cities, counties, Caltrans	Depends on funding
	■ Establish and maintain bicycle advisory committees in all nine Bay Area counties	Cities, counties, MTC	Ongoing
	■ Designate a staff person as a Bicycle Program Manager	Cities, counties	Ongoing
	■ Develop and implement comprehensive bicycle plans	Cities, counties, MTC	Ongoing
	■ Encourage transit operators to accommodate bicycles on transit vehicles, including removal of peak-hour restrictions	MTC, transit operators, BAAQMD	Ongoing
	■ Encourage Caltrans to accommodate bicycles on all bridges, including the San Francisco - Oakland Bay Bridge	MTC, Air District	Depends on funding
	■ Encourage employers and developers to provide bicycle access and facilities (see also TCM 15)	Cities, counties, Air District	Ongoing
	■ Provide bicycle safety education	Cities, counties, school districts	Ongoing

TABLE 6 (Cont'd)
PROPOSED TRANSPORTATION CONTROL MEASURES

	DESCRIPTION	IMPLEMENTING AGENCIES	SCHEDULE
TCM #10 Youth Transportation	■ Encourage carpooling among students with access to cars	MTC's Regional Rideshare Program, school districts	Phase I
	■ Replace school buses with clean-fuel vehicles	School districts, Air District	Depends on funding
	■ Offer transit ride discounts to youth and students	Transit operators	Depends on funding
	■ Establish special carpool formation services for parents, students and staff at Bay Area elementary and secondary schools	MTC via Regional Rideshare Program	Depends on funding
TCM #11 Install Freeway/ Arterial Metro Traffic Operations System (MTOS)	■ Continue and expand Freeway Service Patrol	Caltrans	Phase I
	■ Complete initial 45 mile segment of MTOS (MTOS includes transportation operational strategies, traffic surveillance, traffic advisory signs, incident management, ramp metering), subject to a demonstration of air quality benefits	Caltrans, MTC, Partnership	Phase I
	■ Define and implement traffic operations system to improve the flow of traffic on the regional transportation network	Caltrans, MTC	Phase II
TCM #12 Improve Arterial Traffic Management	■ Study signal preemption for buses on arterials with high volume of bus traffic	Cities, counties, transit operators, CMAs	Ongoing
	■ Improve arterials for bus operations and to encourage bicycling and walking	Cities, counties, transit operators, CMAs	Ongoing
	■ Continue and expand local signal timing programs, only where air quality benefits can be demonstrated	MTC, cities, counties, CMAs, Caltrans	Ongoing

TABLE 6 (Cont'd)
PROPOSED TRANSPORTATION CONTROL MEASURES

	PROPOSED DESCRIPTION	IMPLEMENTING AGENCIES	SCHEDULE
TCM #13 Transit Use Incentives	■ Expand Regional Transit Connection (RTC) ticket distribution through employers, and continue "Commuter Check" program for employers to subsidize employee transit passes	MTC's Regional Rideshare Program, transit agencies, Commuter Check Corp., employers (public and private)	Phase I
	■ Construct transit centers identified in AC Transit's Comprehensive Service Plan	AC Transit	Phase I
	■ Translink (universal fare card) on AC Transit, BART, CCCTA, Golden Gate Transit, LAVTA and MUNI	MTC, Transit operators	Phase I
	■ Develop transit incident response plan	MTC, Transit Operators	Phase I
	■ Provide selective fare reductions: reduced off-peak fares, reduced fares for special events, reduced fares for lines with excess capacity, downtown free fare zones, etc.	MTC, Transit Operators	Phase III
TCM #14 Improve Rideshare/ Vanpool Services and Incentives	■ Develop long-term funding plan for Regional Ridesharing Program	MTC	Phase I
	■ Implement Traffic Management Programs that promote ridesharing and vanpooling	Caltrans	Ongoing
	■ Explore potential demand for medium-distance (20-30 miles) vanpools and develop incentives for this market if demand exists	MTC's Regional Rideshare Program	Phase I
	■ Explore potential demand for real-time ridesharing	MTC's Regional Rideshare Program	Phase III

TABLE 6 (Cont'd)
PROPOSED TRANSPORTATION CONTROL MEASURES

	PROPOSED DESCRIPTION	IMPLEMENTING AGENCIES	SCHEDULE
TCM #15 Local Clean Air Plans, Policies and Programs	<ul style="list-style-type: none"> Encourage cities and counties to incorporate air quality beneficial policies and programs into local planning and development activities, with a particular focus on subdivision, zoning and site design measures that reduce the number and length of single-occupant automobile trips. 	ABAG, BAAQMD, MTC in collaboration with cities and counties	Ongoing - incentives will be developed in Phase I
	<ul style="list-style-type: none"> Develop subregional planning pilot projects 	ABAG	Ongoing
	<ul style="list-style-type: none"> Provide technical assistance to local government agencies 	Air District	Ongoing
	<ul style="list-style-type: none"> Publicize noteworthy examples of local clean air plans, policies and programs, as well as endorse noteworthy development projects 	Air District, MTC	Ongoing
TCM #16 Intermittent Control Measure/ Public Education	<ul style="list-style-type: none"> Encourage public to reduce motor vehicle use and other polluting activities on predicted ozone exceedance days through "Spare the Air" program 	Air District	Ongoing
	<ul style="list-style-type: none"> Continue public education program to inform Bay Area residents about status of regional air quality, health effects of air pollution, sources of pollution and measures that individuals and communities can take to help improve air quality 	Air District with public outreach steering committee	Ongoing
	<ul style="list-style-type: none"> Continue and expand the Bay Area Clean Air Partnership (BayCAP), focusing on voluntary actions by employers to improve air quality 	Air District, employer associations	Ongoing

TABLE 6 (Cont'd)
PROPOSED TRANSPORTATION MEASURES

	PROPOSED DESCRIPTION	IMPLEMENTING AGENCIES	SCHEDULE
TCM #17 Conduct Demonstration Projects	<ul style="list-style-type: none"> ■ Promote demonstration projects to develop <u>new</u> strategies to reduce motor vehicle emissions. Potential projects include: <ul style="list-style-type: none"> - Electronic toll collection - Low emission fleet vehicles - LEV refueling infrastructure 	<p>Caltrans Air District Air District</p>	<p>Phase I Phase I Phase I</p>
TCM #18 Transportation Pricing Reform	<ul style="list-style-type: none"> ■ Advocate legislation for authority and develop and promote revenue measures: <ul style="list-style-type: none"> - Congestion pricing on bridges - Parking cash out - Parking charges at rail stations - Regional gas tax of \$0.10 - Regional gas tax of \$0.50 - Regional gas tax of \$2.00 - Smog-based registration fees - New vehicle "feebates" ■ Use revenues to fund transportation alternatives, user incentives and equity programs 	<p>Air District, MTC, State Legislature, voters</p>	<p>Phase I Phase I Phase I Phase I Phase II Phase III Phase III Phase III</p>
TCM #19 Pedestrian Travel <i>(new measure added to 1997 CAP)</i>	<ul style="list-style-type: none"> ■ Review/revise general/specific plan policies to promote development patterns that encourage walking and circulation policies that emphasize pedestrian travel and modify zoning ordinances to include pedestrian-friendly design standards ■ Include pedestrian improvements in capital improvements program ■ Designate a staff person as a Pedestrian Program Manager 	<p>Cities, counties</p> <p>Cities, counties</p> <p>Cities, counties</p>	<p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p>
TCM #20 Promote Traffic Calming Measures <i>(new measure added to 1997 CAP)</i>	<ul style="list-style-type: none"> ■ Include traffic calming strategies in the transportation and land use elements of general and specific plans ■ Include traffic calming strategies in capital improvements programs 	<p>Cities, counties</p> <p>Cities, counties</p>	<p>Ongoing</p> <p>Ongoing</p>

